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SIGNIFICANCE AND INFLUENCE OF ACCOUNTING DATA ADJUSTED FOR PRICE-LEVEL CHANGES ON THE PROBLEMS AND POLICIES OF PUBLIC UTILITIES

by
Earl A. Spiller, Jr.

A dissertation submitted in partial fulfillment
of the requirements for the degree of
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CHAPTER I

INTRODUCTION

The Fluctuating Dollar

Functions of the Monetary Unit

Although money frequently has been maligned as the root of all evil, an economic society without a monetary unit could be likened to a piece of machinery operating without benefit of either grease or oil. For when economic interrelationships extend beyond a simple barter exchange and when society makes a conscious choice between the present and the future, some medium is necessary to facilitate the exchanges of goods and services in such an economy. This medium, the monetary unit, must serve well both at a point in time and through time.

The task of the monetary unit in its capacity as the lubricant of our economic system can be subdivided into two basic and two corollary functions. The prime roles of the monetary unit are: (1) medium of exchange and (2) standard of value. To serve effectively as a medium of exchange, the monetary unit must be readily acceptable in exchange for goods at a particular time. On the other hand, in its capacity as a standard of value and in its subsidiary roles as a store of value and a standard of deferred payment, the monetary unit must provide a stable measuring stick for the highly diverse goods and services whose values are continually being compared and contrasted.

When used as a standard of value, money has no inherent usefulness except for its accuracy as a "symbol representing and measuring

in terms of value given quantities of real things."[1] (Italics mine.) It is in this respect that the monetary unit often fails to perform properly. Sound comparisons and decisions require a stable measuring unit; a variable standard is not consistent with logical reasoning:

> It [the dollar] is a perfectly useful and satisfactory yardstick for measuring and comparing the values of different things at the same time, or at different times if its purchasing power remains constant. Where, however, it fails to perform its measuring function is when similar things have to be measured at different times on variable standards of value. It is here that accounting practices must find some proper means of correcting this in those elements of accounts where it is necessary.[2]

The Dollar as a Standard of Value

The value of the dollar, by which the values of the numerous goods and services produced in our economy are measured, rests on the real quantities of these goods that can be exchanged for it. When people exchange more goods for a dollar than they did previously, the value of the dollar has increased. And when people exchange progressively less goods and services each year for a dollar, as has been the case in recent years, the purchasing power of the dollar declines.

That the dollar is a variable measuring rod can be readily recognized if one only compares its purchasing power or value through time. Although there is some question concerning the items to be used in defining the purchasing power of the dollar, Table 1 on page 3 gives an indication of the fluctuations in the value of the dollar as measured by three different price indices. As an index rises, the value of the

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[1] The Association of Certified and Corporate Accountants, "Observations on Recommendation XV of The Institute of Chartered Accountants in England and Wales on Accounting in Relation to Changes in the Purchasing Power of Money," The Accountant, CXXX (January 16, 1954), p. 76.

[2] Ibid., p. 77.

dollar declines. In the thirty years from 1929 to 1959 the Gross National Product Deflator has risen from 57.4 (1954 = 100) to 108.2. During the same period the Wholesale Price Index has increased 92% while the Consumer Price Index has risen 69%. These indices present some indication of the degree of price inflation that has occurred in the United States and,

TABLE 1

FLUCTUATION IN PRICES

Year	Consumer[a] Price Index 1947-49=100	Wholesale[a] Price Index 1947-49=100	Gross National[b] Product Deflator 1954=100
1929	73.3	61.9	57.4
1934	57.2	48.7	46.9
1939	59.4	50.1	48.1
1944	75.2	67.6	66.5
1949	101.8	99.2	88.2
1954	114.8	110.3	100.0
1955	114.5	110.7	101.2
1956	116.2	114.3	104.2
1957	120.2	117.6	108.2
1958	123.5	119.2	110.7

[a]U. S., Department of Commerce, Bureau of the Census, Statistical Abstract of the United States: 1957 (Washington, D. C.: U. S. Government Printing Office), pp. 328, 332.

U. S., Bureau of Labor Statistics, "Current Labor Statistics: D--Consumer and Wholesale Prices," Monthly Labor Review, LXXXI-LXXXII (1958-1959).

[b]U. S., Department of Commerce, Office of Business Economics, U. S. Income and Output (Washington, D. C.: U. S. Government Printing Office, 1958), pp. 220, 222.

"New Data and Publication on National Income," Survey of Current Business, XXXIX (February, 1959), p. 24.

therefore, an indication of the extent of failure of the dollar to serve as an accurate instrument of measurement.

The important quantitative aspects of economic analysis revolve around real quantities of goods and services. The dollar serves only as a common denominator in which the real quantities can be expressed. For example, a man's income is the amount of goods and services that he can obtain in exchange for his labors, not the number of dollars he happens to receive in his pay check. Similarly, a man's wealth consists of the goods he possesses or can claim, not the dollar amount of his bank account or of his other assets. Only the purchasing power which is stored in money should assume significance in our economy.

As has been illustrated previously, however, the dollar is not a stable common-denominator. Its purchasing power or value is in continual flux, sometimes vacillating gently and sometimes exploding rapidly. These movements of the price-level distort the basic measurements necessary for accurate decision-making in a complex economy.

Herein lies the general nature of the problem to be discussed in this paper: "People have so long become accustomed to thinking of wealth in terms of money that often they have come to confuse the thing they are measuring with the unit of measure."[3] The problem of using financial data unadjusted for price-level changes originates in the inadequacy of the medium (the monetary unit) which must be used to express, record, summarize, and interpret economic data. As one of the pioneers in the adjustment of accounting data for price-level changes has stated, "Accounting figures are expressed in rubber units of measurement. . . . The truthfulness of accounting depends largely upon the truthfulness

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[3]Arthur H. Dean, "Provision for Capital Exhaustion Under Changing Price Levels," Harvard Law Review, LXV (June, 1952), p. 1348.

of the dollar--and the dollar is a liar."[4] The adjustment of accounting data for price-level changes does not alter the basic data; rather, it simply restates the data in terms of a common, comparable unit of measurement.

Awareness of the General Problem

As the value of the dollar has declined, increasingly more attention has been paid to the need for financial data adjusted for price-level changes. Cognizance of the distortion between national income in current dollars and "real" national income, between money wages and "real" wages, between reported profits and "real" profits, etc. has increased tremendously.

Recognition among government economists has been quite prevalent. For instance, the Office of Business Economics of the U. S. Department of Commerce computes Gross National Product and National Income data in both historic dollars and constant dollars. The latter computations present a comprehensive measure of the real volume of national production of goods and services. In the area of business profits, inventory valuation adjustments have been used by the Office of Business Economics to remove from profits the effects of gain or loss on inventories. Moreover, in their 1958 edition of national income statistics entitled U. S. Income and Output, the Department of Commerce presents additional data relating depreciation expense in original dollars to depreciation expense in current and constant dollars. The economists' plea for aggregative economic data adjusted for price-level changes has been heeded.

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[4]Henry W. Sweeney, Stabilized Accounting (New York: Harper and Brothers, 1936), p. xi.

Although the resulting data have not been so fruitful, this same awareness of the need for recognizing price-level changes has permeated the accounting profession also. Both the Study Group on Business Income sponsored by the American Institute of Certified Public Accountants and the American Accounting Association's Committee on Concepts and Standards Underlying Corporate Financial Statements have recommended the use of adjusted data as supplementary information:

> It would seem that in the longer view methods could, and should, be developed whereby the framework of accounting would be expanded so that the results of activities, measured in units of equal purchasing power, and the effects of changes in the value of the monetary unit would be reflected separately in an integrated presentation which would also produce statements of financial position more broadly meaningful than the orthodox balance sheet of today. It is believed that statements of business income in which revenues and charges against revenue would be stated in units of substantially the same purchasing power would be significant and useful for many purposes for which income determinations are commonly used, if not also in reports upon stewardship.[5]

It would be folly to claim that all accountants, businessmen, government agents, etc. are thoroughly aware of the implications of changing price levels or that they are agreed on what are the correct methods of adjustment. On the other hand, the quantity of literature written on this subject testifies to its importance and to the widespread recognition that a problem exists.

Nature and Importance of the Profit Adjustment

Adjusting the various components of national income for the effects of price-level changes would seem, at first thought, to call for simple division of the reported figures by a price index. For example, assume that total wages have increased from $100 billion to $300 billion in reported dollars while an index of the general price

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[5]Study Group on Business Income, Changing Concepts of Business Income (New York: The Macmillan Company, 1952), p. 105.

level rose from 100 to 200. In this case dividing $300 billion by 200% would give real wages of $150 billion expressed in dollars of the earlier year.

Such a simple procedure applicable for gross figures like wages and interest is not appropriate for adjusting a net concept like profits. Profits are the residual from a matching process using dollars of many different dates and purchasing powers. To measure real profits, all these revenue and expense figures must be stated in dollars of the same purchasing power. To illustrate, assume that a man bought a piece of land for $50 when the price level was 100 and sold it for $100 when the price level was 200. Under conventional accounting practice, his Income Statement would appear as follows:

Revenue	$100
Expenses	50
Net Income	$ 50

Now if the net income figure is adjusted for the change in the price level, it would become $25 ($50 x $\frac{100}{200}$). However, in real terms the Income Statement actually should read:

Revenue	$100
Expenses ($50 x $\frac{200}{100}$)	100
Net Income	$ 0

"It is clearly not enough to deflate the reported income figures by dividing money profits by some cost-of-living index. . . ."[6]

Whereas the need for accounting data adjusted for price-level changes has been answered somewhat on the aggregative level, a dearth of information at the individual company level still exists. Few companies provide data about net income and the concomitant rate of return

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[6]Joel Dean, "Measurement of Profits for Executive Decisions," The Accounting Review, XXVI (April, 1951), p. 190.

expressed in units of the same purchasing power.

When one realizes that profit is the mainspring and balance wheel of a dynamic free enterprise system, he cannot help but wonder why more emphasis has not been placed on a more accurate measurement of profit--an assurance that the balance wheel is hung truly. Accurate measurements of net income and rate of return play an essential role in management, investor, and government decisions. Such areas as the purchase and sale of securities, dividends and reinvestment of earnings, labor relations, rate regulation, income taxes, and the appraisal of managerial effectiveness--all are influenced by the accuracy of the measurements of the accounting data involved.

It has been argued frequently that businessmen and investors alike are able to make accurate subjective adjustments for the effects of changing price levels. While there is little doubt that many astute people do make some attempt at analyzing the effects of a variable dollar, it seems inconceivable that the resulting decisions could not be improved by a more accurate presentation of adjusted accounting data. Intelligent guesses based on a knowledge of general economic conditions are not a substitute for rational decisions founded on a systematic analysis of the available data adjusted for price-level changes for a particular individual company: "Such mental reservations and adjustments are not definitive enough for economically correct managerial decisions."[7]

Purpose of This Study

In the above section two important points were set forth.

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[7]Joel Dean, Managerial Economics (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1957), p. 26.

First, an accurate measurement of net income and rates of return is essential for sound decisions in many areas of our economic life. Secondly, the dollar is the standard unit of measurement in financial matters, but it falls short of providing a stable standard when the value or purchasing power of the dollar is constantly fluctuating. Since income measurement is primarily the accountant's responsibility, it behooves him to use all his energies in attempting to provide a meaningful yardstick. Furthermore, those in a position to use accounting data should insist on the most accurate measurement that can be provided. Nobody benefits in the long run from deception and illusion. The distortion of earnings and earning rates "becomes especially important when the errors are of such magnitude as to lead to unwise decisions by managements and investors and unsound conclusions and policies on the part of governmental agencies."[8]

This study begins from the assumptions that accounting statements are useful and that distortions have arisen in these statements from changes in the price level. The study will proceed to examine various problem areas and policy decisions of public utilities to determine to what extent adjusted accounting statements might exert an influence. Its major purpose will be to investigate the hypothesis that the use of accounting data adjusted for price-level changes can provide helpful and relevant information for management, investor, and government decisions in public utilities. Conversely, the use of unadjusted accounting data may lead to inequitable and uneconomic decisions by investors, government agencies, and business management.

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[8]William A. Paton and Robert L. Dixon, Essentials of Accounting (New York: The Macmillan Company, 1958), p. 782.

Most of the work that has been done in this field has been concerned with theoretical problems and methodology. Little has been attempted in relating the adjusted data to specific decision-making areas. Recent accounting literature abounds in books and articles on the subject of price-level changes and accounting data. Numerous studies--both on a general, theoretical basis and on a historical, selected-company basis--have been made to show the distortion in conventional accounting statements caused by price-level changes. Sundry methods and indices for the adjustment of accounting statements have been advanced.

However, accounting is basically utilitarian; its theory and methodology must eventually pass the test of providing useful knowledge: "The primary function of accounting is to accumulate and communicate information essential to an understanding of the activities of an enterprise . . . ."[9] If price-level adjustments are useless in supplying these facts for a rational comprehension of modern business, the technique will ultimately fall by the wayside. On the other hand, if adjusted data more adequately fill the need, then the technique should be supported whole-heartedly. Therefore, it is proposed here to investigate further the role that adjusted accounting data can and/or should play in the policy decisions and problem solving of one segment of our economy--public utilities.

Phases of This Study

In the investigation of the above hypothesis, this study will

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[9]American Accounting Association, Accounting and Reporting Standards for Corporate Financial Statements and Preceding Statements and Supplements (Columbus, Ohio: American Accounting Association, 1957), p. 1.

consist of four major phases. Each of these phases will be the theme of a separate chapter. In any study of this kind it is necessary first to lay some basic foundation for what is to follow. Chapter II will attempt to discuss briefly some of the essential background information. Specifically, it will consist of a discussion of the accounting concept of business income and a brief review of the theory of adjusting accounting statements.

After the nature of adjusted earnings and earning rates has been defined and outlined in Chapter II, the remainder of the study will relate to the significance that these data have for decision-making by three important groups--management, investors, and government. Chapter III discusses the influence of common-dollar accounting in four selected areas of management decisions--debt policy, wage and bonus policy, dividend policy, and investment policy. Possible reactions of investors, bondholders and stockholders, to changing price levels and adjusted data claim the attention of Chapter IV. Likewise, Chapter V is devoted to a discussion of the potential uses of adjusted data by governmental agencies. Particular attention in this chapter will be focused on regulatory policy and taxation policy.

In each of these chapters the usefulness of adjusted data in making decisions is examined and analyzed deductively. Supporting the conclusions drawn in this way is evidence presented from the study of aggregative public utility data and from some investigations of individual public utilities. These conclusions are summarized in Chapter VI along with the implications that this study brings to light concerning the future of public utilities.

Scope and Limitations of this Study

It is not intended to make this study an all-encompassing discourse on price-level adjustments. On the contrary, three limitations on the areas to be discussed have been imposed purposefully from the outset. For example, this study is limited basically to a discussion of public utilities. In addition, only selected problem areas, particularly in the realm of management decisions, are considered. And finally, primary emphasis is placed on a discussion of decision-making rather than on techniques of adjusting for price-level changes in the accounts.

The reason for confining this discussion to the public utility sector is three-fold. First, public utilities are regulated companies, unable to have a free reign in price-setting, expansion, or capital structure decisions. In these and many other areas, government commissions and courts--state, national, or both--serve as watchdogs over the decisions made. Secondly, public utilities typically have large amounts of fixed assets. As the price level has risen, depreciation expense and net fixed assets, the latter forming a major part of the base on which utilities are allowed to earn, are inaccurately measured when reported in historic dollars. The existence of large amounts of fixed assets and the presence of regulation lead one to believe that adjusted data might have a more forceful impact in the public utility area than perhaps in other areas. Thirdly, accounting and financial data are more uniform and detailed because of strict accounting requirements of the regulatory commissions. While the logic of these regulations will not be analyzed here, their existence does facilitate the collection and

comparison of data.[10]

To keep the discussion within reasonable limits, only selected problem and decision-making areas will be discussed. This limitation, however, in no way implies that adjusted data exert no influence in other areas. Similarly, the reader should not infer that accounting data are the only pertinent data having significance in the aforementioned areas. It has been the intent here to choose some important policy decisions as illustrations of the impact that adjusted data might exercise.

As mentioned previously, the techniques of price-level adjustment have been thoroughly discussed in numerous works.[11] Although much disagreement still exists as to the correct procedure to use, little would be gained by a repetition of old arguments. Therefore it is intended to limit this study to a discussion of decision-making instead of plowing old fields of technique. Except for the background material explaining common-dollar accounting and the theory of price-level adjustments contained in the following chapter, specific problems of adjustment are not discussed unless they might influence the understanding of a particular point.

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[10] For background reading on the systems of accounts used by public utilities, the reader could consult Sidney Davidson, The Plant Accounting Regulations of the Federal Power Commission (Ann Arbor: University of Michigan Press, 1952); J. Rhoads Foster and Bernard S. Rodey, Public Utility Accounting (New York: Prentice-Hall, Inc., 1951); or one of the many fine books about public utility regulation.

[11] Among the many books and articles on this subject, the following are some of the better sources of background information: Sweeney, op. cit; Perry Mason, Price-Level Changes and Financial Statements: Basic Concepts and Methods (Columbus, Ohio: American Accounting Association, 1956); Ralph Coughenour Jones, Effects of Price-Level Changes on Business Income, Capital, and Taxes (Columbus, Ohio: American Accounting Association, 1956); William A. Paton, Corporation Accounts and Statements (New York: The Macmillan Company, 1955), pp. 523-565.

CHAPTER II

INCOME MEASUREMENT, PRICE-LEVEL ADJUSTMENT, AND COMMON-DOLLAR ACCOUNTING

The broad intent of this study is to investigate the significance that accounting data adjusted for price-level changes have for some areas of decision-making in public utilities. Of particular importance is the effect of a more accurate measurement of earnings and earning rates, in terms of a constant dollar, on these decisions. Before such a task can be undertaken, however, one must be aware of the basic concepts that are being discussed. The purpose of this chapter, therefore, is to lay the foundation for the analysis that is to follow. Specifically this groundwork encompasses three areas: (1) the accounting concept of business income, (2) the theory of price-level adjustments, and (3) a brief description of common-dollar accounting.

Accounting Concept of Business Income

Accounting arose primarily as a tool of measurement for business use. Therefore, income measurement as envisioned by the accountant merely attempts to provide a logical and systematic procedure for recording, summarizing, and interpreting business transactions, and it is here that one must look first in analyzing the accounting concept of income.

The basis of the general nature of business operations lies in an expenditure-recovery cycle. Stripped of embellishments, the operations of a business enterprise involve the collection and expenditure

of funds in anticipation of their subsequent recovery with profits. The timing of the recovery or, in the case of losses, failure to recover varies with the type of expenditure made. For example, some expenditures, like the purchase of land, are never expected to be recovered as long as the business exists. Others are recovered or lost in the period in which they are made or in some future period. Expenditures for labor and raw materials are examples of these items. Finally, some expenditures are recovered in installments such as buildings and machinery. From this, one can see that in its simplest form an asset is in reality an expenditure awaiting recovery.

The task of the accountant then is to record the expenditure and recovery (loss) of these funds in a meaningful fashion:

> From an accounting standpoint, the distinguishing characteristic of business today is the extent to which expenditures are made in one period with the definite purpose and expectation that they shall be the means of producing profits in the future; and how such expenditures shall be dealt with in accounts is the central problem of financial accounting.[1]

Matching Costs and Revenues

From the above analysis it is clear that the accounting concept of net income is one of separating the funds received from the operation of a business into two parts. One part represents the recovery of funds previously expended; the remainder is profit or net income. An accrual system of accounting basically is a system of matching funds previously expended and now recovered or lost (costs) against the total funds received from operations (revenues). Costs in a broad sense

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[1] From correspondence between the American Institute of Accountants and the New York Stock Exchange in 1932-1934 entitled Audit of Corporate Accounts quoted by Samuel J. Broad, "The Development of Accounting Standards to Meet Changing Economic Conditions," The Journal of Accountancy, LXXXVII (May, 1949), p. 383.

measure effort; revenues, accomplishment: "The matching of effort (cost) and accomplishment (revenue) is an index of the general success of the firm in its efforts to acquire income."[2]

It would follow, therefore, that the cost of any factor used in business operations should be matched against revenue only when the resulting product is recognized as having produced revenue. In other words, costs should flow into an accounting system in the same way as revenues. For as Paton and Littleton state,

> Cost is initially an acquisition price and only finally a deduction from revenue. The fundamental problem of accounting, therefore, is the division of the stream of costs incurred between the present and the future in the process of measuring periodic income.[3]

Cost factors, in theory then, should be allocated between the present and the future wholly on the basis of when the benefits from the expenditures are expected to occur. In practice, uncertainty of the period of usefulness and difficulty in tracing and assigning costs often cause departures from the above theory of cost allocation. However, it should be recognized that these constitute practical departures from the theory and not a new method of allocation.

Perhaps the area in which the most confusion arises concerning cost allocation is in the area of depreciation:

> Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage, over the estimated useful life of the unit in a systematic and rational manner. It is a process of alloca-

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[2]Norton M. Bedford, "Accounting Measurements of Economic Concepts," The Journal of Accountancy, CIII (May, 1957), p. 60.

[3]W. A. Paton and A. C. Littleton, An Introduction to Corporate Accounting Standards (Columbus, Ohio: American Accounting Association, c. 1940), pp. 66-67.

tion, not of valuation.[4]

This view emphasizes the concept that the purchase of capital goods is nothing more than a purchase of future services, and the cost of these services should be spread over the periods in which they are used.

It is not the purpose of depreciation charges to measure a fall in value, exchange value (market price) or use-value (physical deterioration and obsolescence), or to provide a fund for the financing of replacements or new capital purchases. On the other hand, it is the purpose of the depreciation charge to achieve a correct allocation of costs to the different accounting periods and to provide for the retirement costs of assets whose useful service lives have expired. In this sense the term "expired capital outlay"[5] is probably a more exact definition of what the depreciation charge actually represents.

Following the accounting concept of income determination, cost factors thus are divisible into three parts. Expired costs are those whose benefits have been utilized in the production of revenues in the current period. They are not applicable to the production of future revenues. Losses are lost costs--costs, which, although when acquired were intended to be utilized, have for some reason expired without being used or without contributing to the production of revenues. These two types of cost factors represent expenditures recovered or lost in the current period and are, therefore, deducted from the revenues of the

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[4]American Institute of Certified Public Accountants, Committee on Terminology, Accounting Terminology Bulletins, Number 1: Review and Résumé (New York: American Institute of Certified Public Accountants, c. 1953), p. 25.

[5]Percey D. Leake, Depreciation and Wasting Assets (London: Gee and Company, 1948), p. 5.

period.

The third division of expenditures is those which are applicable to the production of future revenues. These cost factors are deferred costs or unexpired costs. They should appear as assets along with resources available for future debt payment on the position statements (balance sheets) prepared at the end of the period. Assets are not limited to current assets and physical property but include any cost or portion thereof which is properly carried forward as being relevant to the revenues of some future period: "The balance sheet thus serves as a means of carrying forward unamortized acquisition prices, the not-yet-deducted costs; it stands as a connecting link joining income statements into a composite picture of the income stream."[6]

Accounting v. Economic Income

Frequently, complaints are heard, primarily from economists, that the accounting concept of income as outlined above really does not show the "real" or "true" nature of a person's income. One finds upon further investigation, however, that for the most part, economists differ among themselves as to what constitutes real or economic income.

For example, Hicks begins his discussion of income by saying, "It would seem that we ought to define a man's income as the maximum value which he can consume during a week, and still expect to be as well off at the end of a week as he was at the beginning."[7] In attempting to define "as well off", Hicks evolves no less than three possible concepts. The first defines "as well off" as "maintaining intact the

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[6]Paton and Littleton, op. cit., p. 67.

[7]J. R. Hicks, Value and Capital (Oxford: Clarendon Press, 1953), p. 172.

capital value of prospective receipts (in money terms)."[8] Under the second concept a person tries to maintain the expectation of being able to spend the same amount in each ensuing week in money terms. The third viewpoint translates the second concept into real terms. By adding to these ideas definitions of income based on the maintenance of capital value and/or prospective income, measured in terms of potential-purchasing-power, actual-purchasing-power, replacement-values, and physical concepts, one can see that what constitutes economic income is far from clear.[9]

Despite this uncertainty some general observations about economic income can be stated. The economist is concerned primarily with cases where the future is presumed to be known. People can revalue assets and liabilities at will, including going-concern values; they can accurately foresee the inflow and outflow of funds in the future and can ascribe these flows to particular assets. Where the nature of these future items is not known, then income becomes "a subjective concept, dependent on the particular expectations of the individual in question."[10]

"To the accountant, net income is essentially a historical record of the past. To an economist, net income is essentially a speculation about the future."[11] To the economist, income is the excess of capital values recognized over capital values consumed for a definite

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[8] Ibid., p. 173.

[9] For further analysis and an excellent discussion of these concepts, see George F. Break, "Capital Maintenance and the Concept of Income," The Journal of Political Economy, LXII (February, 1954), pp. 48-62.

[10] Hicks, op. cit., p. 177.

[11] Joel Dean, Managerial Economics, p. 13.

period of time. The determination of capital values is dependent on expectations of future earnings which in turn involve an analysis of future demand and supply conditions plus other factors affecting the enterprise. For this reason, accountants have tended to abandon the valuation approach, preferring, on the other hand, to use a cost approach in practice as the basis of their records. In summary, as one economist working with the Study Group on Business Income stated, "Faced with a choice between precision of operation and precision of concept, the accountant has chosen the former, the economist the latter."[12]

The purpose of the above discussion has been to show that the oft-repeated phrase "economic income" is a very illusive, intangible concept and has not been clearly defined. Because of its highly subjective nature, economic income usually is not capable of implementation in the real world. Consequently, it is not the intent of this study to advocate or define ways in which the accounting concept of income measurement can be transformed to approximate the economic concept of income more closely. Rather, the task here is to demonstrate how the adjustment of accounting data for price-level changes can make the basic accounting concepts more useful in decision-making. It is only an incidental result if this method also eliminates one of the economists' chief criticisms of accounting, the use of a fluctuating dollar as a yardstick.

Postulates and Concepts Underlying Accounting

The view was expressed in the preceding section that most

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[12]Sidney S. Alexander et al., Five Monographs on Business Income (New York: Study Group on Business Income of the American Institute of Accountants, 1950), p. 9.

concepts of economic income are not suitable for objective measurement in practical business affairs. Moreover, the thought was advanced that the basic purpose of this study is to establish the usefulness of accounting concepts when they have been adjusted for price-level changes.

Before proceeding further, one should examine more closely the fundamental postulates and concepts underlying accounting:

> Accounting is a curious mixture of realism and historic convention, of practical wisdom and theory, of rough adjustment and intricate calculation, of objective standard and subjective estimate. The aim of accounting is not so much to arrive at eternal truth as to present a useful working tool, a guide for judgment. In this quest, certain postulates are assumed. These postulates are not adopted because they are universally true but because they are useful. The effect of the various postulates must be understood, for they lead to results not necessarily in accord with reality.[13]

Although accounting finds its substance in the matching of costs and revenues, its practical operations are founded on a system of postulates which have been found useful through the years. Such a system does not imply that accounting has no basic theory; on the contrary, this system of conventions might be likened to the assumptions on which the accountants' deductive model of income measurement rests. In any case, "the significance of periodic accounting profit is, therefore, the algebraic sum of the separate significances of the various conventions, doctrines, rules, and practices which at any particular time constitute the common law of accounting."[14]

In the following discussion, the words--principle, concept,

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[13]Oswald Knauth, Business Practices, Trade Position and Competition (New York: Columbia University Press, 1956), quoted by Bedford, op. cit., p. 62.

[14]Stephen Gilman, Accounting Concepts of Profit (New York: The Ronald Press Company, c. 1939), p. 605.

postulate, convention, and standard--are used interchangeably. A discussion of their etymological differences is beyond the scope of this study, except perhaps to point out that "principle" means in this case "a general law or rule adopted or preferred as a guide to action; a settled ground or basis of conduct or practice."[15]

Entity concept.--The business enterprise is visualized as an entity apart from the owners, creditors, or managers. Therefore, the accounting statements which are prepared represent the activities of the entity rather than the people or groups concerned with it.

Postulate of the going concern.--"In the absence of evidence to the contrary, the entity is viewed as remaining in operation indefinitely."[16] It is this convention which allows the accountant to allocate costs, particularly of long-life assets, over the useful lives of these assets.

Convention of the accounting period.--It is almost axiomatic that the most accurate statement of accounting income would be one matching all costs and all revenues after the entity has been liquidated and all relations between owners definitely severed. Only in this way could one be sure that the matching process and valuation were completely accurate. On the other hand, the complexity of modern business and the business environment require periodic measurements of business efficiency in terms of income. People using corporate reports must rely on current data and cannot wait until liquidation to ascertain net income.

For this reason, the accountant prepares reports of net in-

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[15]American Institute of Certified Public Accountants, Committee on Terminology, op. cit., p. 11.

[16]American Accounting Association, op. cit., p. 2.

come for time periods which are to some extent artificial from the point of view of the continuous nature of the enterprise. It must be remembered, therefore, that these periodic reports serve only as indices of the stream of economic activity of the entity. The period convention reflects the needs of those who use accounting reports.

Realization postulate.--In its simplest form, this postulate states that revenues should not be recognized until realized. As such, the postulate actually signifies little, for realization can be viewed as cash realization, practical realization (constructive receipt), contractual realization, or market realization. A better title for this particular accounting practice would be "standards for the recognition of revenues" or simply "recognition postulate."

The inherent implication of realization is that a change in an asset or liability has occurred with enough certainty and objectivity to justify recognition in the accounts. Because certainty and objectivity are ofttimes lacking, revenues are not recognized as they are economically earned except in a few cases such as the accruing of interest receivable on an interest-bearing investment. For the most part, accountants visualize revenues as arising at a particular moment when certain events have occurred. These events could be called tests of recognition.

In trying to understand the accounting concept of income, it behooves one to look at least briefly at these tests of recognition. One of the most important benchmarks involves the "conversion through legal sale or similar process" plus "validation through acquisition of liquid assets."[17] A somewhat broader interpretation of revenue

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[17]Paton and Littleton, op. cit., p. 49.

recognition was stated by James Dohr in 1938, "In the periodic summation an increment in wealth is to be recognized only as and when the business in question has become legally entitled thereto, without substantial restriction, in a reasonably determinable or measureable amount."[18] The salient feature of both these and other standards for revenue recognition is the emphasis on verifiable, objective evidence. With few exceptions, the acountant finds this evidence as the result of completed transactions with outsiders.

The Monetary Postulate

Undoubtedly the most significant postulate for the purposes of this study and the one to be seriously questioned is the monetary postulate. Although this postulate has been stated in many ways, two basic ideas are involved. The first part, often included implicitly, states that money is "the simplest and most adaptable common denominator in which business transactions may be expressed, and its use facilitates the summarizations and comparisons essential to effective reporting."[19] The second assumption, to which strong exception is taken in this study, is that fluctuations in the value of the monetary unit may properly be ignored in preparing financial statements without substantially affecting their significance and usefulness.

The assumption of stability in the monetary unit is an obvious fiction--a fiction which is acceptable, however, only if by following it rather than some other assumption, more useful results can be obtained. As indicated in Table I on page 3, the monetary unit is far

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[18]James L. Dohr, "Income Divorced from Reality," The Journal of Accountancy, LXVI (December, 1938), p. 363.

[19]American Accounting Association, op. cit., p. 3.

from stable in value. This fact leads one to question the usefulness of data based on this assumption: "When inflation continues to a substantial degree it becomes unavoidably necessary to recognize that the results of an accounting system are not properly usable for the determination of income, depreciation, property costs, or taxes if they ignore substantial changes in the currency in which measurements are expressed."[20] In brief, the dollar cannot serve as a valid common denominator for economic values when it, itself, needs a common denominator.

An indication of the tremendous distortion that violent fluctuations in the value of the monetary unit can cause in normal accounting relationships can be seen in an example of a subsidiary of Standard Oil in Hungary.[21] After a ravaging inflation in 1946 the subsidiary showed the following relationships:

(1) Current assets were 45,446 septillion times the capital stock.
(2) Construction in progress was 165 times the whole plant account.
(3) Profits were 37,053 septillion times the capital stock.
(4) Return on capital was 3.5 nonillion % (3,500,000,000,000,000,000,000,000,000,000%).

With these extreme circumstances, few would argue that the accounts should not be adjusted. If this be the case, then the main question is not whether accounts should be adjusted but rather how much inflation is a prerequisite to action.

It is a thesis of this study that when the price level has risen almost as much as 10% in some years and the purchasing power

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[20]Herman L. Gruehn, "Utility Problems During Inflation," Public Utilities Fortnightly, LXIII (January 15, 1959), p. 96.

[21]Lloyd Paxton, "How a Large Oil Company Adjusted Its Accounts During Postwar Inflation Behind the Iron Curtain," The Journal of Accountancy, XCII (August, 1951), p. 192.

of the dollar has almost been halved in the last twenty years, enough inflation has occurred to warrant the adoption of a different postulate.[22] Because the inflation here in the United States has not been as extreme as in the case above:

> . . . is hardly an argument against the explicit and uniform replacement of a postulate which is having detrimental effects by a postulate that is more useful. Use of the purchasing power postulate in business accounting would put into the hands of those already aware of the problem a better set of figures than they can make up themselves from accounts based on the monetary postulate. It should awaken those as yet unaware of the problem and provide them also with the information they need.[23]

These facts and opinions serve as further support for the assertion that the monetary postulate is not reliable and tend to raise some serious doubts about its usefulness.[24] It would seem that some changes in accounting data are necessary to make the data more useful. Following the monetary postulate simply does not carry out the primary purpose of accounting--to accurately match revenues with related costs

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[22]For the effect that even the gradual inflation in the United States has had on accounting relationships in companies, see Ralph C. Jones, "Effect of Inflation on Capital and Profits: The Record of Nine Steel Companies," The Journal of Accountancy, LXXXVII (January, 1949), pp. 9-27.

[23]Study Group on Business Income, op. cit., p. 78.

[24]These doubts often have inadvertently been fortified by statements of groups who support the use of unadjusted data. For example, in Recommendation XV entitled "Accounting in Relation to Changes in the Purchasing Power of Money," (Institute of Chartered Accountants in England and Wales, Recommendations on Accounting Principles [London: Gee and Company, Limited, 1953], p. 101), the foremost accounting body in England wholeheartedly upholds the use of historical costs (unadjusted data) in accounting. Nevertheless, they make the following statement about unadjusted data: "The council cannot emphasize too strongly that the significance of accounts prepared on the basis of historical cost is subject to limitations, not the least of which is that the monetary unit . . . is not a stable unit of measurement. In consequence the results . . . are not a measure of increase or decrease in wealth in terms of purchasing power; nor do the results necessarily represent the amount which can prudently be regarded as available for distribution. Similarly the results shown by such accounts are not necessarily suitable for purposes such as price fixing, wage negotiations, and taxation . . ." (Italics mine).

properly measured.

Adjusting for Price-Level Changes

If, then, changes in the value of money are to be recognized, attention should be devoted to the available methods. It is the purpose of this section to discuss attempts to adjust for price-level changes. In particular, the use of the Lifo method of inventory valuation and adjustment via index numbers will be analyzed. The latter discussion will cover the area of replacement costs and specific index numbers versus the purchasing-power approach and general indices of changing price levels. A brief consideration of three indices of general purchasing power--namely, the Consumers' Price Index, the Wholesale Price Index, and the Gross National Product Deflator--will conclude this portion of the chapter.

Lifo Inventory Valuation

In the assignment of inventory costs to revenues, some assumptions as to the flow of goods and costs through the business entity must be made. One of the most controversial and yet most strongly supported methods when price levels fluctuate is the Last-in-first-out method. Under the Lifo procedure the oldest goods (costs) are assumed to remain in inventory while the latest goods purchased or made (costs) are assumed to have been sold. These latest costs then are the ones which are matched against the revenues of the period.

A simple example will illustrate its use. Assume the following conditions:

Beginning Inventory 100 units @ $1.00	$100.00
Purchases:	
200 units @ $1.10	210.00
100 units @ $1.08	108.00
400 units @ $1.15	460.00
	$888.00

Now assume that 600 units are sold at $1.50 each; total revenues are, therefore, $900.00. Under the Lifo inventory valuation, the Ending Inventory of 200 units would be valued as follows:

100 units @ $1.00	$100.00
100 units @ 1.10	110.00
	$210.00

Similarly, the cost of the units sold which will be matched against the revenue received from their sale will be computed as follows:

400 units @ $1.15	$460.00
100 units @ 1.08	108.00
100 units @ 1.10	110.00
	$678.00

The firm's Income Statement would appear:

Revenues	$900.00
Cost of Goods Sold	678.00
Net Income	$222.00

The reader can readily observe that except for a few instances, Lifo refers to an assumed flow of costs which does not parallel the physical flow of goods. It also is apparent that in a period when the price of these goods is advancing, the higher-priced goods are matched against the assumed higher selling prices, tending to reduce the resulting net income figure. One argument for this procedure is that it takes more money to replace the sold inventory and, therefore, the increased cost of replacing inventory should be deducted from revenues in the computation of net income.[25]

The Lifo theory adds an additional step to the investment cycle. Under Lifo the cycle becomes:

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[25]It is apparent upon further analysis, however, that Lifo really does not remove completely from net income amounts necessary to replace the inventory. There is no sure indication that costs under Lifo will be the same as replacement prices. Only a Nifo (Next-in-first-out) costing procedure would give full replacement.

Cash-----> Inventory-----> Receivables-----> Cash-----> Inventory

The general nature of business operations, however, is not from one investment to another investment but rather from uninvested cash back to cash available for reinvestment or other purposes. Each investment is an independent management election: "At each turnover of the inventory, the resultant receipts from customers restore the liquidity of the investment in inventories, thereby making possible a new set of decisions as to the amount and direction of the investment."[26] E. Stewart Freeman of the Dennison Manufacturing Company made a similar point when he stated,

> A replacement is an investment for the sake of future sale or use. No efficient concern replaces inventories or facilities merely because the old goods have been sold or the old facilities worn out. Past sale or use is doubtless the cause of the extinction of the old asset but it is neither the cause nor the beneficiary of the new asset with which the old is to be replaced.[27]

In addition to the criticism of the implicit theory of Lifo, one also can question its success in achieving its objective of matching current costs against current revenues. First, an accurate matching can occur only if there is a close relationship between factor prices and product prices and if there is only a short time between the purchase of factors and the sale of the product.

Secondly, Lifo inventory valuation could conceivably lead to an actual mismatching of costs and revenues. Lifo provides a current valuation of inventories sold only when the physical volume of inventories is increasing. If the Lifo inventory method is not adopted when

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[26]Maurice Moonitz, "The Case Against Lifo," The Journal of Accountancy, XCV (June, 1953), p. 689.

[27]E. Stewart Freeman, "Why Profit Figures Are Misleading," The Controller, XIX (December, 1951), p. 565.

the inventory quantity is low and this minimum amount of inventory kept on hand at all times, current revenues will not be matched with current costs. Lifo inventories are built up in cost layers with the oldest and, during inflation, probably the lowest of these cost layers representing the closing inventory. If inventory quantities decline, the lower cost layers must then be matched against current revenues, thus defeating the basic purpose of Lifo.[28]

Perhaps the most important criticism of the Lifo method from the viewpoint of this study is its confusion of changes in the prices of specific goods with changes in the general price level. The problem of a varying unit of measurement deals with changes in the value of the dollar which should be determined properly by reference to some indicator of general purchasing power, probably a general price index. Lifo, on the other hand, has to do with changes in the price structure, an entirely different problem from changes in the price level. They are the same only to the extent that specific price rises correspond to the general price rises; if this be the case, then an adjustment for general price-level changes would be more direct. If the two price movements are dissimilar, then "the artificial Lifo method may easily exaggerate, conceal, or even show in reverse, real gains and losses."[29] Lifo by "neutralizing only those price changes affecting some given quantity of inventory which happened coincidentally to be on hand at the time

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[28]During wartime provision was made in the tax law to allow as a deduction as part of cost of goods sold the excess costs incurred in replacing basic stocks which due to wartime shortages were involuntarily liquidated. This is not a normal phenomenon in peacetime, however, and thus does not detract from the validity of the point being made.

[29]American Accounting Association, op. cit., p. 39.

the adoption was made"[30] offers no real solution to the problem of an unstable yardstick.

One further comment about the use of Lifo is in order. By valuing inventory on hand at the oldest prices, the position statement (balance sheet) shows the asset at the lowest possible cost figure. This distortion in the balance sheet affects computations of rate of return on total assets, inventory turnover, and working capital and its ratios. It would appear that any "gain" in a more accurate matching of costs and revenues in the income statement (subject to the other criticisms made, of course) would be at the expense of an increasing inutility in the position statement.

What then can be said in favor of the Lifo procedure? First and foremost, its use does imply a recognition of the basic problem of changing prices. Therefore, its significance lies in the recognition of an objective and not in the manner that it attempts to achieve that objective. As one author has written, Lifo is "the incomplete extrapolation of an idea having basic merit."[31]

The use of Lifo for tax purposes may indirectly have provided another benefit. In January, 1947 in the Hutzler Brothers case,[32] the use of Lifo for tax purposes was extended to permit opening and closing inventories to be compared by means of price indices for the purpose of estimating changes in physical volume. This introduction of index num-

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[30]Charles E. Johnson, "Inventory Valuation--The Accountant's Achilles Heel," The Accounting Review, X XIX (January, 1954), p. 21.

[31]William Blackie, "What Is Accounting Accounting For--Now?," N. A. C. A. Bulletin, XXIX (July 1, 1948), p. 1355.

[32]Hutzler Brothers Company v. Commissioner of Internal Revenue, 8 T. C. 15 (1947).

bers may serve as an opening for the use of index numbers in the determination of depreciation charges for tax purposes also sometime in the future. The precedent has been set, and it would seem that attention should now be focused on the adjustment for price-level changes employing index numbers.

Adjustment Using Index Numbers

Because Lifo is an incomplete and often inaccurate attempt to adjust for price-level changes, some other systematic method of adjustment should be explored. Probably the most plausible alternative is to adjust accounting data using index numbers. Under this method, account balances and entries would be expressed in some constant dollar, preferably the current dollar; for this is the dollar people are thinking about at a particular time. The procedure used would be to convert an item by multiplying it by a fraction; the numerator would be the current price index and the denominator would be the index of the price level when the item was originally recorded. In this way index numbers could be consistently and objectively employed in adjusting the basic accounting data.

The question which arises immediately, of course, is what kind of index number to use. Should each particular account be converted using a specific index number or by an index of the general price level. For example, should buildings purchased years ago be expressed at a current dollar amount computed by using an index of building costs (specific) or an index of the general price level. It has already been suggested previously that a general purchasing-power index would be more appropriate. However, it behooves one to investigate this matter further before proceeding.

The Use of Specific Indices

Specific indices have many uses for business such as appraisals for insurance, damage claims, and in some cases replacement decisions. However, it is the viewpoint here that they are not appropriate for adjusting accounting data for price-level changes in obtaining a better measure of earnings. To support this claim one must look at the arguments offered in support of the use of specific indices.

One of the reasons most frequently advanced is that cost recovery provides funds for replacement; therefore, the cost to be deducted from current revenues is what the entity would have to pay to replace. Adjustment with a specific index would more closely approximate replacement cost than a general price index.

Three criticisms can be made to this argument. Firstly, replacement costing, like the Lifo theory, regards income determination as a sale followed by reinvestment rather than an investment followed by a sale. A second obvious objection is that an investment may not be replaced at all, may not be replaced in kind, or may be replaced only in part. In each of these cases, the above argument loses its force. Finally, a third point to consider is that even if replacement does take place sometime in the future, no one knows the price levels at which assets will be replaced. Therefore, adjusting costs to current replacement price-levels might not provide the funds necessary for replacement when that time comes.

A variation of the foregoing contention states, for example, that the depreciation charge should measure the cost of the physical capital consumed. This cost should be measured by specific indices because they provide figures which approximate what it is costing currently

for the "equivalent replacement"[33] of these assets. Future replacement costs are thus irrelevant; the current economic cost is the current value of what is being used--a type of alternative cost theory.

This viewpoint, while theoretically preferable to the former one, still contains shortcomings. By endeavoring to maintain physical capital, this method quite conceivably might result in the physical preservation of capital whose worth in the general system of values is itself declining or rising. A more fundamental objection is the assumption that specific indices (replacement cost) provide an accurate measure of the alternative cost involved in using the asset. The true opportunity cost of an asset is the payment that would have to be made to replace the service being used, not to replace the physical asset itself.

A major reason for the above difference and a further questionable characteristic of specific index numbers is their sensitivity to changes in technology. If a specific index is not affected by technological changes, then it probably does not approximate at all the true opportunity cost of the asset as mentioned above. On the other hand, most specific indices are affected by progress in the industrial arts. Using these indices has the effect of transferring from capital to income an amount equal to the reduction in replacement cost caused by technological progress. "While the effects of technological change can never be wholly eliminated, the influence of technological factors upon a broad general index is certainly far less marked than it is upon highly specialized indexes."[34]

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[33]Willard J. Graham, "The Effect of Changing Price Levels Upon the Determination, Reporting, and Interpretation of Income," The Accounting Review, XXIV (January, 1949), p. 22.

[34]Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes, p. 176.

The Purchasing-Power Approach

The use of specific indices has been urged by some on the grounds that assets do not maintain the same relative value to each other over time. However, in converting costs it is desirable to maintain the same relative values that the asset values would have if they had all been purchased with like dollars. For when an expenditure is made, it is general purchasing power that has been committed. Cost recovery should be a recovery of equivalents--that is, a recovery of the same economic power over goods, purchasing power, that was invested rather than recovering the value of a particular asset. It is advocated in this study that accounts be adjusted for changes in the value of the dollar and not for changes in the cost of specific assets.

The question may be raised why general purchasing power should be considered as the proper medium for the expression of accounting statements. The reason is that money as such signifies nothing. Money has meaning only in its ability to command goods and services.[35] Therefore, it is the purchasing power of money paid which constitutes economic real cost and not the number of monetary units themselves.

Investment involves the postponement of consumption; therefore, recovery of the investment necessitates the recovery of its initial power to consume. The American Accounting Association in Supplementary Statement Number Two has correctly pointed out that an "initial investment is made as an alternative to all other possible business uses

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[35]Alfred Marshall states in his Principles of Economics (8th ed.; London: Macmillan and Company, Limited, 1925), p. 22, "Money is general purchasing power, and is sought as a means to all kinds of ends." See also John Maynard Keynes, A Treatise on Money (New York: Harcourt, Brace and Company, 1930), I, 53, where he states, "A man does not hold money for its own sake, but for its purchasing power--that is to say, for what it will buy. Therefore his demand is not for units of money as such, but for units of purchasing power."

of funds and, as recovered, again becomes 'free' for reinvestment or any other business use."[36] A similar statement could be made about the stockholders' investment. Since the alternative uses (which measure purchasing power) of the stockholders' contributions are myriad and since business expenditures are made over a broad range of goods, it would seem that the best measure of the purchasing power of the dollar with which to adjust accounting data would be an index of the general price level.

The Case Against Adjustment Via Index Numbers

Many accountants have been advocating adjustment of accounting data for price-level changes throughout the past three decades. For as long a time, however, an equally large or perhaps larger group has argued against conversion. Their case, which seems to rest on five primary points, has been repeated so often that it should be given some consideration here.

Perhaps the argument heard most frequently is that there has been no legal or tax recognition of changing price levels. While this fact is regrettable, it offers little real opposition to conversion. The accountant's main job is to report economic data, not to file tax returns. The reporting of accurate economic data to the users of financial statements is not hampered by legal or tax considerations to any great extent. Even when, however, accountants have to abide by legal or tax considerations, they should be at the forefront in pressing for improvements in the legal and tax systems as they apply to business.

Others have argued that price levels may decline in the future and then the whole problem will be much ado about nothing. It would ap-

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[36]American Accounting Association, op. cit., p. 26.

pear that the accountant would then be like the proverbial ostrich, burying its head in the sand, ignoring the present problem, and wishfully hoping that it will go away. The value of accounting statements lies in their contribution to current decision-making. It would seem rather fruitless to wait and hope for a price decline so that one could say that the net income figures computed five or ten years ago are now more comparable and more accurate. Finally, the most important point is that even if price levels do decline, the problem of an unstable measuring unit will still exist. As long as heterogeneous cost and revenue figures are added and subtracted, adjustment will still be necessary.

A third criticism of price-level adjustments is that accounting rests on a cost basis, and conversion of the accounts via index numbers would represent an abandonment of this cost basis. However, historical cost figures are not always the basis of accounting records. Witness, for example, the recording of donated assets at their fair market value or appraisal values that are entered in accounts where it is deemed that the historical cost figures would be misleading. Furthermore, as previously indicated, cost is not simply a number of monetary units but rather an expression of the economic sacrifice or purchasing power expended. Adjusting accounting data by an index of the general price level is not a replacement cost concept or an appreciation or appraisal concept. Rather it is an attempt to recognize that a quantity of dollars must be modified to take account of the quality thereof. As William A. Paton, one of the leading advocates of conversion, said,

> . . . actual cost cannot be found by totaling an array of figures expressed in varying units of measure. This means that those who hold that accounting should report actual costs, and at the same time object to the conversion of data recorded in varying monetary

> units to a common denominator, are defending procedures that make it impossible to achieve the avowed objective. The true supporters of the "cost basis" are those who are pointing out the need for conversion.[37]

Fourth, many have stated that adjusted accounting statements would cause confusion among the users and readers of these statements. This particular argument is perhaps important in the short-run, in the first years when adjusted statements are widely issued. In the long-run, however, this argument becomes less telling. Certainly, those who understand the limitations of present accounting data would not be confused, and it would appear that anyone familiar with the fluctuating dollar in the past decade would be able, after a little education and with full disclosure and explanation, to understand this attempt to correct for changes in the value of the dollar. People are able to comprehend changes in the "consumers' cost-of-living"; surely, they could perceive changes in the "corporate cost-of-living" also.

Finally, there are those who agree with the theory of price-level adjustment but who oppose its implementation because of the problems caused by choosing and using index numbers. They state that index numbers are not accurate and that the use of different indices would cause accounting to lose much of its uniformity. This attitude seems somewhat curious in the light of the wide range of estimate and choice which is inherent in accounting already. Any of the three main indices of the general price level would give measures of value superior to the present use of the current monetary unit: "An approximation of a useful fact does more good than the precise measurement of a less useful one."[38]

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[37]Paton, Corporation Accounts and Statements, p. 533.

[38]Freeman, op. cit., p. 565.

General Price Indices

The three general indices mentioned above which commonly are accepted as measures of the general price level are the Consumers' Price Index (Bureau of Labor Statistics), Wholesale Price Index (Bureau of Labor Statistics), and the Gross National Product Deflator (Office of Business Economics of the U. S. Department of Commerce). It must be remembered, however, that the reciprocals of these indices are only a close approximation to the purchasing power of the dollar. The purchasing power of the dollar equals the quantities of other goods which a given amount of money will buy and, therefore, is most accurately measured by a quantity index rather than the reciprocal of a price index.[39] However, the two for all intents and purposes are similar. Consequently, the discussion here will center on the price indices.

A general price index usually consists of a weighted average of prices of a selected sample of goods. By sampling prices and weighting them according to their relative importance (quantities), it is hoped that a comparatively accurate indication of how an average of all prices is moving can be achieved. The methods of sampling, weighting, and constructing index numbers are too numerous to study separately.[40] However, some general comments would seem to be in order.

Basically, there are only three types of quantity weights. Prices can be weighted by current year weights (Paasche Method $\frac{P_1q_1}{P_0q_1}$),

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[39]For a theoretical discussion of this point see Wirth F. Ferger, "Distinctive Concepts of Price and Purchasing-Power Index Numbers," Journal of the American Statistical Association, XXXI (June, 1936), pp. 258-272.

[40]Perhaps one of the most concise, understandable treatments of index number theory can be found in Bruce D. Mudgett, Index Numbers (New York: John Wiley and Sons, Inc., 1951).

by weights taken from the base year (Laspeyres Method $\frac{p_1 q_0}{p_0 q_0}$), or by weights taken from some other year or period of years ($\frac{p_1 q_a}{p_0 q_a}$). These weights are often combined in various ways. For immediate use, however, weighting systems employing current year quantities are usually ruled out because current quantities are not available soon enough for the range of commodities represented by the price quotations used. In addition, in practical calculations the indices are usually a weighted average of price relatives. This means that each price relative ($\frac{p_1}{p_0}$) is multiplied by a value weight ($p_0 \times q_0$) and then averaged. It can be seen, however, that weighting prices by quantities gives the same results as weighting price relatives by values (i.e., $p_1 \times q_0 = \frac{p_1}{p_0} (p_0 \times q_0)$.

Perhaps the greatest obstacle to the compilers of index numbers has been the problem of quality changes and technological changes. Unfortunately, the goods whose prices are being compared are not always exactly the same goods. In other words, changes in the cost of these goods may reflect quality improvements and technical variations as well as price changes. For the most part, such changes are not measurable, and it is necessary to make an assumption about them. For example, "when there is a change in the quality of the product included in the index . . . it is assumed that the difference in price is the measure of the difference in quality and the index is calculated in a manner which eliminates the effect of this quality change."[41] Nevertheless, it is possible for quality to improve without any correlative price increase. In this case, the quality change remains hidden and may cause some bias in the index.

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[41]Committee for Economic Development, Defense Against Inflation (New York: Committee for Economic Development, 1958), p. 68.

There are a number of steps that can be taken, however, to minimize the distortion caused by these factors. Periodic shifting of the index base with a backward splicing of the index number reduces to some extent the bias caused by technological changes. Similarly, where the quantity weights are drawn from years other than the base year, these weights should be changed frequently with backward splicing of the index.

Moreover, the use of chain indices takes into consideration changes in quality through the years. In a chain index the index for the current year is calculated with the previous year as a base. Then the result is multiplied by the prior year's index using the regular base to obtain an index of the current year's prices with the regular base year. Algebraically it would appear as follows:

P_{01} = index of prices of Year 1 with Year 0 as the base

$P_{02} = P_{01} \times P_{12}$; index of prices of Year 2 with Year 0 as the base equals the product of the index of Year 1 with base Year 0 times the index of Year 2 with base Year 1

$$P_{03} = P_{01} \times P_{12} \times P_{13} = P_{02} \times P_{23}$$

Because the items whose prices comprise the index are more homogeneous within a span of one year, the chain index is more accurate in comparing diverse years and also in substituting commodities in the index.

Using the above discussion as a backdrop, the rest of this section will describe the three main indices of the general price level. Figures 1 and 2 on pages 42 and 43 show graphically the movement of these indicators. Figure 1 presents the yearly movements since 1927; Figure 2, the quarterly movements since 1945. The scales have been arranged to facilitate visual comparisons. Although each index has its own characteristics, one will observe that each moves in close

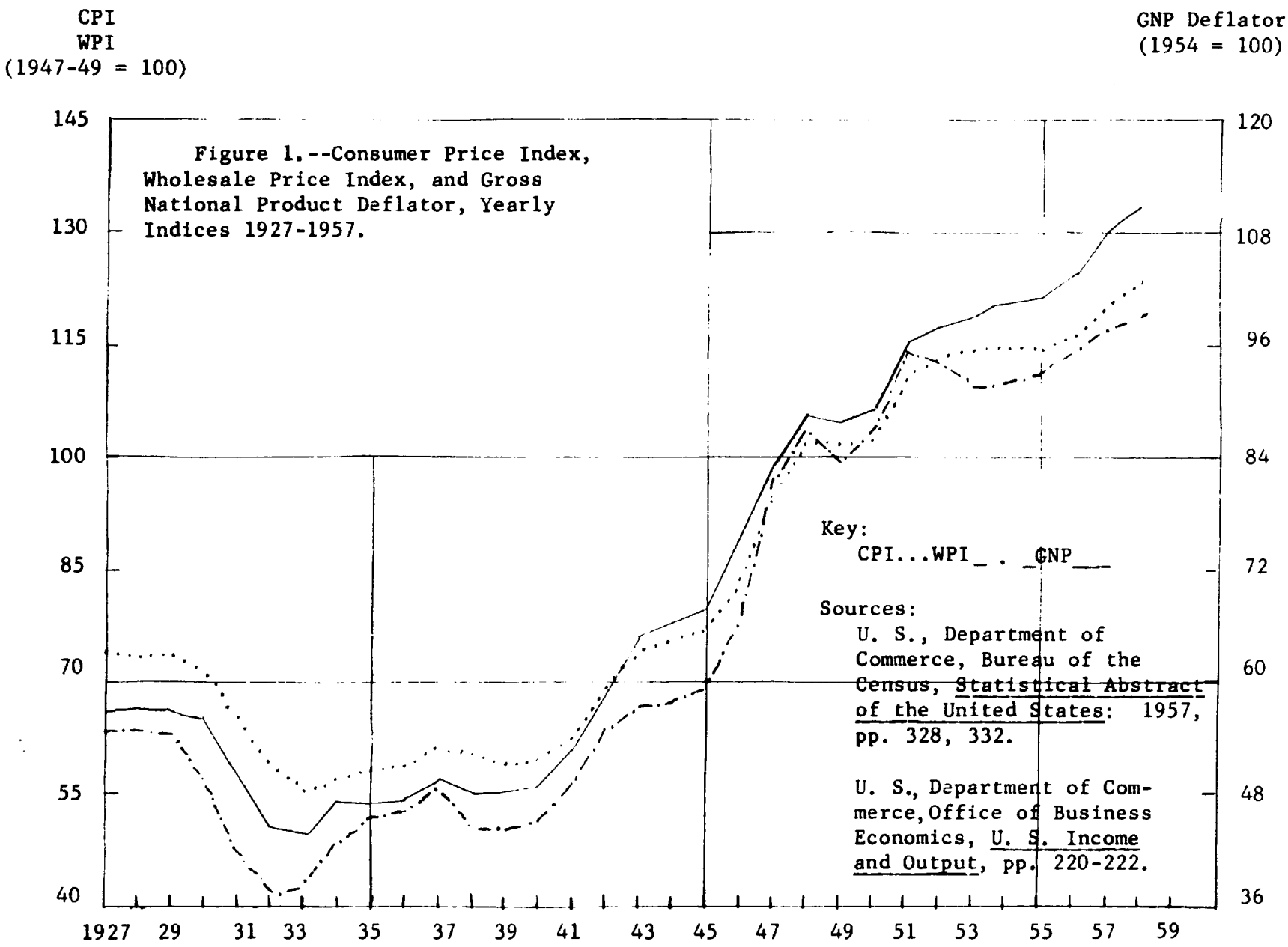


Figure 1.--Consumer Price Index, Wholesale Price Index, and Gross National Product Deflator, Yearly Indices 1927-1957.

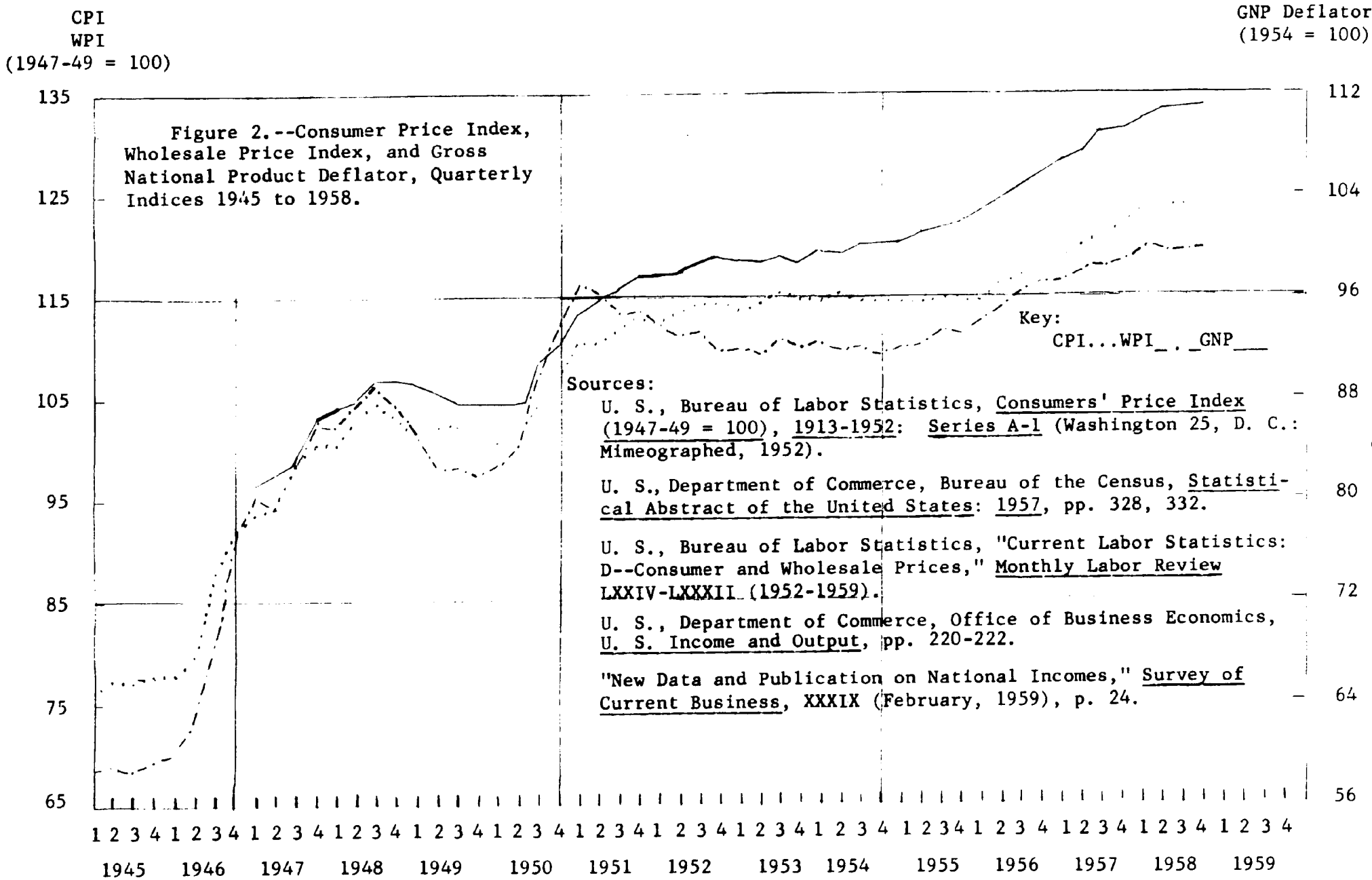


Figure 2.--Consumer Price Index, Wholesale Price Index, and Gross National Product Deflator, Quarterly Indices 1945 to 1958.

Sources:

U. S., Bureau of Labor Statistics, Consumers' Price Index (1947-49 = 100), 1913-1952: Series A-1 (Washington 25, D. C.: Mimeographed, 1952).

U. S., Department of Commerce, Bureau of the Census, Statistical Abstract of the United States: 1957, pp. 328, 332.

U. S., Bureau of Labor Statistics, "Current Labor Statistics: D--Consumer and Wholesale Prices," Monthly Labor Review LXXIV-LXXXII (1952-1959).

U. S., Department of Commerce, Office of Business Economics, U. S. Income and Output, pp. 220-222.

"New Data and Publication on National Incomes," Survey of Current Business, XXXIX (February, 1959), p. 24.

proximity to the others and that their general fluctuations up and down coincide. These correlative movements offer further support for the argument that the use of any of these indices would provide better measurements than the unadjusted dollar. Nevertheless, it would seem necessary to look briefly at the composition of each of these indices.

Consumers' Price Index

Formerly called the Cost of Living Index, the Consumers' Price Index (CPI) is a weighted average of price relatives. The current index uses 1947-49 as a base but is a chain index with each link being calculated by the Laspeyres formula. The formula for CPI is:

$$P_t = P_{t-1} \frac{\sum qa\ P_{t-1}\left(\frac{P_t}{P_{t-1}}\right)}{\sum qa\ P_{t-1}}$$

The quantity weights (qa) are drawn from the 1950 Survey of Consumer Expenditures. This survey gives the so-called "market basket" whose price is compared over a number of years. The weighting has been changed periodically to make the "market basket" approximate current spending habits more closely and to include new items being bought by consumers. In addition to changing the basic weights intermittently, the Bureau of Labor Statistics has also broadened its sampling to include more items and more cities--all of which has added to the improvement of the index.

Changing the "market basket" at various intervals necessitates the use of a linking system in order to maintain a continuous sequence of numbers. Whenever a new series (new weights) is begun, the old series was linked to the new. The linking of two series of indices changes the level of the old index but leaves the percentage changes from month to month intact.

For gradual changes in the nature of the commodities sampled between periods when new weights are introduced, the following procedure is employed. When an article is not available, another article which can be described adequately by the same detailed definition of the former article is substituted, and any difference in price is shown as a price change. When an exact substitute is not available, an article filling the same need but described by different specifications is used. The new article is linked or spliced in so any differential in price is not reflected in the index movement. Therefore the "market basket" used in this index must be "regarded as an approximation to a bundle of goods providing a fixed real income of utility rather than a bill of goods of physically identical commodities."[42]

The Consumers' Price Index has much to recommend it as the deflator for accounting data. It is widely used and generally accepted for measuring changes in the general price level. Changes in the CPI probably receive the greatest attention by the ordinary person. Moreover, its general acceptance is illustrated by the number of escalator clauses in labor contracts which are tied to it. In addition to the above reasons, Ralph C. Jones used the CPI in his studies because of its relatively smaller fluctuations than the Wholesale Price Index. He argued that the CPI would then measure the minimum amount for which accounts should be adjusted. While this argument has some applicability, volatility in a particular index should not condemn the use of that index if it is truly representative of the purchasing power of the dollar. Conversely, mild fluctuations in an index do not compensate

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[42]Melville Ulmer, The Economic Theory of Cost of Living Index Numbers (New York: Columbia University Press, 1949), p. 66.

for inappropriateness of the index.

Despite its wide use the CPI has distinct limitations as a measure of the purchasing power of the dollar. In addition to the problem of quality changes mentioned previously, there is also a lag before the effects of new products and new channels of distribution are recognized in the index. The newest goods are the ones usually declining in price; non-recognition of these goods imparts some upward bias to the index.

The prime limitation of the CPI as a general price index lies in its scope and definition. The complete definition of the index is the Consumers' Price Index for Moderate-Income Families in Large Cities. As such, it only measures average changes in the retail prices of goods, rents, and services purchased by wage earners and lower-salaried workers in large cities. The reciprocal of the CPI, therefore, is a valid indicator of the purchasing power of the dollar solely for this limited section of consumers. It would appear that its scope encompasses too small a range of purchases and of purchasers to be an accurate measure of changes in the general level of prices confronting businesses and stockholders. A special committee of the American Statistical Association, which studied the index, came to a similar conclusion in 1945:

> The Bureau of Labor Statistics Index, however, does not cover all consuming groups in our economy. . . . For this reason we do not believe that the Bureau's cost-of-living index should be used by itself as a measure of the extent of inflation.[43]

Wholesale Price Index

Much of the detail concerning the construction of the CPI

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[43]Office of Economic Stabilization, Report of the President's Committee on the Cost of Living (Washington, D. C.: U. S. Government Printing Office, 1945), pp. 109-110.

applies also to the Bureau of Labor Statistics' Wholesale Price Index (WPI). This index measures prices of commodities at the point of their first large-volume commercial transaction. The indices are computed by chaining together the month-to-month price relatives and using values, in this case sales, as weights. For many years the weights were based on transactions in 1947 when a complete Census of Manufacturers was available. Like the Consumers' Price Index, however, the weights used in the WPI have been brought up to data periodically. In January, 1955 weight changes were inserted based in transactions in 1952 and 1953. Similarly, weights based on 1954 transactions were incorporated into the WPI beginning in January, 1958. In neither case, however, did the revision affect the comparability of the indices before and after the weight changes. Except for the aforementioned revisions, base quantities are changed only when a price change arising solely from a change in specifications has to be eliminated from the index.

One outstanding feature of this index is, however, the fact that specifications do not have to be changed so frequently or substitutes made so often as in the CPI. Constant changes in the commodities used in an index make comparisons over long periods of time difficult: "It is for this reason that the measurement of price levels over long periods is confined for the most part to the staple wholesale commodities which remain much the same from century to century."[44] This attribute makes this index more suitable for adjusting the purchasing power invested in long-term assets than the CPI. This reason could have been the motive for the recommendation of the Wholesale Price Index by the

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[44]Kenneth E. Boulding, Economic Analysis (3rd edition; New York: Harper and Brothers, 1955), p. 275.

American Accounting Association in Supplementary Statement Number Two.

In addition to its relative homogeneity over time, the WPI has broad coverage of the wholesale markets including raw materials, semi-finished, and finished goods. To this extent, it is probably more significant for business uses than the CPI.

One criticism of the Wholesale Price Index that has been touched upon in the previous section is its volatility. As one can notice from the graphs on pages 42 and 43, this index shows greater movements up and down in inflation and recession respectively than the CPI. Carl Snyder, one of the leaders in index number computation, recognized this fact in 1934. He stated,

> Experience has proved that the cost of living indexes show as a rule little of the wide variations of indexes of commodities at wholesale. The movements of the latter, largely dominated by the speculative gyrations of the great basic commodities, wheat, cotton, and the like, could hardly be representative of the vast congeries of retail prices, of thousands of articles of exchange, moving slowly, as a rule.[45]

Although improvements in sampling and weighting have tempered the above criticism somewhat, the basic fact still remains true. Nevertheless, it is not the fluctuations per se which are questionable, but rather, as the last part of Snyder's quotation implies, whether the commodities causing the fluctuations give a true indication of the general price level. It would seem then that one ought to look at the representativeness of the Wholesale Price Index.

Objections can be levied against the coverage of the WPI as well as the CPI. For example, the Wholesale Price Index looks only at list prices and does not consider possibilities of lower quotations via

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[45]Carl Snyder, "Commodity Prices Versus the General Price Level," The American Economic Review, XXIV (September, 1934), p. 386.

extended credit terms, cash discounts, upgrading in quality, or freight absorption. Moreover, the WPI is not really an index of general prices which face the owners of businesses. It does not include, for instance, the prices of services which account for over one-third of the expenditures by consumers in our economy.

Gross National Product Deflator

Having seen that neither the Consumers' nor the Wholesale Price Index is entirely satisfactory as a measure of the general price level, it would appear to be worthwhile to turn attention to a third measure of changing prices--the Gross National Product Deflator (hereafter referred to as the Deflator). Unlike the two previous indices, the Deflator is not a comparison of substantially identical lists of goods and services. Instead, the value of goods and services in any one year is compared with their value in the base year (1954). By this indirect procedure an implicit price deflator is derived.

The GNP Deflator is probably the most comprehensive price index available for it covers the entire range of national output. As Ralph C. Jones has stated, "The Implicit Price Deflator . . . may well be the broadest and best indicator of basic changes in the value of the dollar."[46]

Obtaining the index for a particular year involves taking the total expenditures on goods and services produced in that year in as fine a product breakdown as possible and then deflating these product breakdowns with various specific indices to ascertain what the cost or total expenditure would have been if the quantities purchased in the

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[46]Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes, p. 178.

current year had been valued at prices prevailing in the base year. These costs are then totaled for the current year and the base year for all goods and services; dividing the total cost at current year prices by the total cost at base year prices gives the implicit index of average price change compared to the base year.

A symbolic description of the basic procedure employed in computing the GNP Deflator is presented below. Assume that the base year is Year 0, the current year is Year 1, and that a, b, c. . . n represent various commodity and service groups in the Gross National Product.

a	$P_{a1} \times Q_{a1}$	$\div$	$\frac{P_{a1}}{P_{ao}}$	=	$P_{ao} \times Q_{a1}$
b	$P_{b1} \times Q_{b1}$	$\div$	$\frac{P_{b1}}{P_{bo}}$	=	$P_{bo} \times Q_{b1}$
c	$P_{c1} \times Q_{c1}$	$\div$	$\frac{P_{c1}}{P_{co}}$	=	$P_{co} \times Q_{c1}$
.	.	.		.	.
.	.	.		.	.
.	.	.		.	.
n	$\underline{P_{n1} \times Q_{n1}}$	$\div$	$\frac{P_{n1}}{P_{no}}$	=	$\underline{P_{no} \times Q_{n1}}$
	$\leq \underline{\underline{P_1 \times Q_1}}$				$\leq \underline{\underline{P_o \times Q_1}}$

The total expenditure in current dollars for each product breakdown (i.e. $P_{a1} \times Q_{a1}$) is deflated by a price index to obtain the total cost of the current year expenditures priced at base year prices ($P_{ao} \times Q_{a1}$). These two columns are totaled for the full range of goods and services. The Implicit Deflator then is simply $\frac{\leq P_1 Q_1}{\leq P_o Q_1}$.

The implicit deflator for any of the four sections of Gross National Product can be computed in the same way. If, for example, groups "a", "b", and "c" represented categories of Personal Consumption Expenditures, the Deflator for PCE could be found by totaling the two

columns only for these groups and dividing. The product breakdowns are more detailed, of course, than that given above. Nevertheless, this example does explain the basic ideas involved.

As one can readily see, in theory at least, weights based on quantity expenditures of the current year are incorporated in the index. Since current year weights change with each new year, this means that each year employs different weights; that is, the index for 1955 is weighted by quantities purchased in 1955 while the index for 1956 uses quantities purchased in 1956, etc. In other words, in computing this index the Office of Business Economics tries to employ shifting weights as much as possible. Nevertheless, for many detailed expenditure categories, current quantities are just not available. In these cases, either constant weights or weights determined by interpolation are used. However, the general rule as summarized by the Office of Business Economics still remains as follows:

> In the price indexes so derived, price relatives receive shifting weights in proportion to expenditures incurred each year for the goods and services which they represent. This is in contrast to the more usual type of price index in which weights are based on constant expenditure patterns.[47]

Notwithstanding its very broad coverage and thus virtually perfect applicability as a measure of changes in the purchasing power of the dollar, the GNP Deflator is not free from some difficulties however. One question concerns its acceptability since it is relatively new and not as well known as the other two indices. This possible hindrance has been overcome in recent years for the most part as National Income Accounting has become widely known. In addition, when its merits

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[47]U. S., Department of Commerce, Office of Business Economics, National Income: 1954 Edition (Washington, D. C.: U. S. Government Printing Office, 1954), pp. 157-158.

are widely publicized as they would be if many companies were using it to adjust their statements, it would appear that no problem about its acceptance would arise.

A more serious issue pertains to the availability of the Deflator. A twofold difficulty arises here; the index has not been computed often enough or published soon enough to be of current use. For instance, only from 1947 to the present can one obtain quarterly indices for the Deflator. Contrast this with the monthly computations of the other two indices for their full chronological ranges.

Not only is the Deflator not available in as great detail, but it also lags behind the other two in being published because of reliance on current year weights. Thus, while the CPI and WPI monthly indices are usually available about the middle of the following month, the Implicit Deflator for say the fourth quarter of 1958 would not be available until February, 1959. To what extent these difficulties could be overcome by increased effort if it were known that the index was being used to adjust accounting data is unknown.

A third problem common to the CPI and WPI as well is, of course, quality changes which unavoidably cause some slight inaccuracy in the index:

> The price indexes by the use of which constant-dollar gross national product is derived from the current dollar figures are sometimes adjusted to take account of quality and related changes in the products whose prices they measure. But quality change cannot, in general, be reduced to quantitative terms. In practice, the price indexes and the constant-dollar gross national product do not reflect part of the secular quality improvement and of the emergence of superior products--factors which are characteristic of our economy.[48]

Perhaps the argument most frequently raised against using the

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[48] Ibid., p. 154.

GNP Deflator revolves around the employment of shifting weights. As mentioned above the Deflator uses weights of the current year so that the indices for two different years have different weights and, therefore, are not exactly comparable to each other. Because of changes in quantities purchased from year to year, comparisons not involving the base year are theoretically statistically invalid. For example, with the base year (1954) equaling 100 assume that the index for 1935 is 75 $(\frac{P_{35} \times Q_{35}}{P_{54} \times Q_{35}})$, and the index for 1959 is 150 $(\frac{P_{59} \times Q_{59}}{P_{54} \times Q_{59}})$. Under these conditions it is correct to say that prices in 1954 of the goods and services purchased in 1935 were one-third higher than the 1935 prices. Similarly, one can say that prices in 1959 of 1959 goods and services were 50% higher than the prices of these same goods and services in 1954. On the other hand, because of the shifting weights (from Q_{35} to Q_{59}), it is technically in error to maintain that the general price level in 1959 was twice that in 1935.

The Office of Business Economics takes care to caution the users of the Deflator about this point but also indicates the relative unimportance of it:

> In comparisons not involving 1947 [1954 is the base year used in the 1958 edition], the movement of the implicit deflators cannot be taken as a pure measure of price change because it is affected by changes in product composition as well. A related point to be noted is that it is not strictly correct to obtain constant dollar series in prices of a year other than 1947 [1954] by use of deflators. . . . However, for many practical purposes both of these qualifications of the implicit price deflators may be neglected.[49]

Furthermore, when one considers the real objective of the index which is to measure the purchasing power of the dollar, the objection to shifting weights loses some of its significance. It must

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[49] Ibid., p. 158.

be remembered that the reciprocal of a general price index is only a close approximation to general purchasing power. Other indices revise their weights periodically to give a better measure of the current goods that can be purchased. It would appear that changing weights each year simply carries this idea to its logical conclusion. Referring to the example on the previous page, it might not be proper to say the general price level has doubled from 1935 to 1959. Nevertheless, would it not still be correct to say that the purchasing power of the dollar has been halved; for surely purchasing power expended and recovered has little significance except in terms of what could be purchased at the time the money was invested and subsequently recovered.

Conclusions as to the Use of Index Numbers

Attention has been devoted in the last few pages to a discussion of the merits and limitations of each of the three basic measures of the general level of prices. It has been demonstrated that the GNP Deflator is the best index in terms of coverage but falls short in the area of availability and feasibility for current use. Because of its advantages the Deflator will be used in this study whenever it becomes necessary to adjust the statements of various public utilities. Because of its limitations, however, for years prior to 1947, it will be assumed that the annual index represents the price level throughout the entire year. Since the purpose here is to deal with broad indications, this assumption will not distort the results significantly.

On the other hand, for existing use by businesses adjusting their own particular accounts, the Deflator is probably not sufficiently detailed nor current. In these cases, it would probably be best to use some combination of the Consumers' Price Index and the Wholesale

Price Index, but not either of them alone.

This entire discussion points up the need for further research in this area. Means ought to be devised to provide businesses with a current index representative of the prices of goods and services confronting businesses and their owners:

> For the conversion of recorded dollars in business enterprise, however, none of the familiar indices is entirely satisfactory, except for experimental purposes. It would be helpful if the accounting profession, through one or more outstanding organizations, would give serious attention to the construction of a special index designed to measure changes in the value of the dollar from the point of view of the needs and purposes for which business enterprises keep accounts and make reports.[50]

Common-Dollar Accounting

The other two main sections of this chapter concerned themselves with the accounting concept of income and ways of adjusting this concept to take account of price-level changes. This last section will discuss the result of applying these price-level adjustments to the basic accounting data. This method has been called by many names; the one which seems most appropriate and the one used in this study is common-dollar accounting. In other words, accounting data are to be expressed in terms of dollars of equal purchasing power; they are to be measured by a common dollar.

Necessity of Complete Adjustment

The idea has often been advanced that it is necessary to adjust only the income statement for changes in the price level. However, this view seems to lack logical support when one considers the two kinds of facts that accounting should be attempting to measure. The position

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[50]William A. Paton, Asset Accounting (New York: The Macmillan Company, 1952), pp. 318-319.

statement is essential in the presentation of the resources employed in a business and the sources of the capital used to acquire these resources. The income statement, on the other hand, displays how these resources have been used to increase the capital during a particular time period. The two statements are logical complements. It would follow, therefore, that both should be measured in terms of the same common dollar. Only when they are so measured can rates of return in any meaningful sense be computed. Thus, only by complete adjustment of both statements can one form a fairly accurate inference as to the fruitfulness of the resources invested in the enterprise.

Another suggestion for partial adjustment of the accounts includes only certain items such as inventories and fixed assets in the adjustment process. The Study Group on Business Income recommended as an immediate objective the computation of adjusted income using only converted inventory figures and adjusted depreciation. This procedure eliminates all purchasing power gains and losses on monetary assets and liabilities.

Just as there seems to be no logical reason for adjusting only the income statement, it would appear that no justification can be advanced for reporting the effects of the changing dollar only on certain items: "It cannot be denied that dollars [short-term monetary assets] carried through a period of declining purchasing power have lost part of their power to command economic goods and services."[51] The amount of such losses is frequently more than most people realize[52] and should

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[51]Ralph Coughenour Jones, "Financial Statements and the Uncertain Dollar," The Journal of Accountancy, LX (September, 1935), p. 183.

[52]See William A. Paton, Jr., A Study in Liquidity: The Impact of Inflation on Monetary Accounts ("Michigan Business Studies," Vol. XIV, No. 2; Ann Arbor, Michigan: Bureau of Business Research, School of Business Administration, University of Michigan, 1958).

be reported to the users of financial statements along with other items of revenue and expense. For these reasons, the American Accounting Association recommended in Supplementary Statement Number Two that the measurement of changing price levels should be all inclusive.

Heterogeneous, Current, and Common Dollars

In the terminology that surrounds any relatively new procedure new uses of words often arise. Consequently, it would serve a useful purpose if some clarifications were attempted at this point. Heterogeneous dollars (referred to by some as prevailing dollars) are the units of varying purchasing power which are used to record the individual accounting transactions as they occur (the prevailing dollar at the time). In other words, they are the units of money in which the existing accounting statements are expressed. Although they are all called by the same name, a dollar, the adjective heterogeneous carries the accurate connotation that they are actually dissimilar. The fact that statements expressed in heterogeneous dollars are not suitable for most purposes has been expressed continually throughout this study. No further mention of their limitations seems necessary.

Current dollars are the dollars of a particular year. For instance, in 1946 the current dollar was one of 1946 purchasing power, while in 1959 it becomes the 1959 purchasing-power dollar. Common dollars, on the other hand, are dollars of a particular year (usually the latest year) which are selected to be used to express the accounting data of all other years. In the National Income statistics these are called constant dollars.

Current dollars and common dollars ofttimes are very similar. If the statements prepared for the year 1954 are completely expressed

in 1954 dollars, most all the ratios and rates of return will be the same as if the 1954 statements were expressed in say 1958 dollars.

Moreover, once statements are expressed in current dollars, it is a relatively simple task to convert them to some common-dollar basis. For example, assume that the 1958 dollar is chosen as the common dollar, and the index for 1958 is 150. If all the items in the statements for 1954 are stated in terms of the 1954 dollar (index is 120), then simply multiplying every item by $\frac{150}{120}$ will convert the 1954 statements to 1958 dollars. Such a procedure--that is, expressing the statements for any one year in the dollars of another year--is necessary for comparative purposes. For if one wishes to compare dollar amounts of various accounts over a period of years, either on the income or the position statement, the statements should all be prepared using a common unit of measurement.

It is, of course, possible to convert heterogeneous dollars directly into common dollars. However, the main conversion problems which arise when converting heterogeneous dollars to current dollars would still be present. Therefore, it would appear worthwhile to devote some discussion to the problems of converting unlike dollars to current and/or common dollars.

Adjusting Directly from Unadjusted Data

The practicality of adjusted data must be determined by balancing the value of adjusted data against the cost of obtaining it. The thesis advanced here is that the process of securing adjusted accounting statements is a relatively easy one. Although it is possible to adopt an intricate system of accounts to record adjusted data,[53] it would seem

[53]See, for example, Sweeney, op. cit.

more feasible to keep the basic records as they are presently maintained. Then as adjusted accounting data, for the most part income statements and position statements, were needed, they could be obtained directly from the unadjusted data simply and in sufficient detail. Converting the unadjusted statements rather than the basic accounts eliminates the complexities caused by introducing index numbers directly into the accounts.

Under this procedure it would be possible to produce adjusted data as detailed as the books and/or indices are. For example, revenues from the sale of products could be divided by months and each month's sales could be adjusted to year-end dollars with the appropriate monthly indices. On the other hand, depending on the circumstances, one could simply assume that revenue dollars came in uniformly throughout the year. In this case, total sales revenues would be converted by the average index for the year. A similar analogy involves plant acquisitions. These can be assumed to occur, on the average, at the general index for the year or can be divided by quarters or months and adjusted using the corresponding quarterly or monthly index. The extent of detail in the converted statements would only be limited by the degree of detail in the basic records themselves and in the index used. It would appear, however, that except for years when prices fluctuated widely within a single year, yearly indices would provide sufficiently accurate results.

Adjustment of the Accounting Statements

Following the above recommendation that adjusted statements be converted directly from the unadjusted statements and accounts, this study will now proceed to present very briefly some general principles of adjustment. Each item on the position statement and income statement

is adjusted by multiplying by the index of the common or current dollar divided by the index of the dollar when the item was recorded.

Position statement.--Each asset and equity account should be adjusted to the year-end dollar. Since the short-term monetary accounts automatically assume current-dollar value, they need no adjustment. The nature of the adjustment for inventories depends on the inventory valuation method used and the turnover of the inventories. If Lifo is used, the index probably would be the one at the time Lifo became effective. If either average cost or Fifo were used, turnover of the inventory would have to be computed or estimated to find out exactly what vintage of dollar is represented by the goods still on hand.

The adjustment for fixed assets involves aging the book costs of the assets. The balance of each year's costs remaining on the books is then expressed in current dollars by using the index appropriate for each year. Where the plant records are not detailed by years or where only total retirements in a year are known and cannot be divided by year of origin, some simplifying assumption has to be made in this case. Usually it is assumed that retirements are from the earliest assets on the books. Since the credit to the allowance for depreciation account corresponds to a number of debits of varying price levels, the most practical way to find the adjusted reserve is to apply the total percent of the asset life that has expired to the adjusted balance of the fixed asset.

In a similar manner, the accounts on the equity side of the position statement can be adjusted. No major problems arise in adjusting the Stockholders' Equity. The Capital Stock account is divided into the years of origin of the various contributions. Each is then con-

verted to current dollars and then added to the others. To adjust Retained Earnings, one could conceivably adjust each year's additions and subtractions separately. A more practical way, however, would be to subtract from the total adjusted assets the sum of the adjusted liabilities and capital stock. The difference then shows the completely adjusted Retained Earnings plus or minus gains and losses on monetary assets and liabilities. Finally, a third possibility would be to leave Retained Earnings unadjusted and add a special equity account called "Adjustment to Stock Equity for Price-Level Changes" to make adjusted assets equal adjusted equities.

Some questions, however, concerning the treatment of Long-term Debt and Preferred Stock have arisen. These accounts represent definite commitments of assets to the enterprise for the express purpose of earning a return thereon. In this sense, these contractual investors have fundamental interests akin to those of the common stockholders. This is in contrast to the more temporal creditor who is simply waiting to be paid for goods or services which were supplied to the enterprise.

These three groups--bondholders, preferred stockholders, and common stockholders--represent the real <u>investors</u> in the business; there would seem to be no reason for not recognizing the impact of changing price levels on the commitments of any of them. The position statement can be looked upon as having two sides; one side lists resources (assets) available for use, and the other side states the sources (equities) which contributed the capital. If the resources are being expressed in a common denominator, the sources should be likewise.

Nevertheless, a supplemental purpose of the balance sheet is to show the dollar amounts actually owing to the senior creditors. Thus

for clarity on the position statement one might wish to separate the price-level adjustment from the dollar amount of the debt just as a premium or discount is often shown separately. For example, the Long-term Debt section of the position statement might appear as follows:

Long-term Liabilities:		
Debenture Bonds-5%		
Amount due at maturity	$XXX	
Unamortized Premium	X	
Purchasing-Power Adjustment[54]	XXX	XXX

Income statement.--Revenues from sales and many expenses on the income statement already are expressed in comparatively current dollars. If these items have been recorded uniformly throughout the year, then all that is necessary is to translate them to year-end dollars by using the average index for the year. If there are seasonal variations or uneven price-level changes during the year, monthly or quarterly index numbers would have to be employed.

In determining the figure for cost of goods sold, one presumably would have to follow the assumed inventory flow to compute what goods have been sold. Then the indices applicable to these particular goods would be used to ascertain the amount of expense to be subtracted from revenues.

The annual charge for depreciation is most easily computed by applying the depreciation rate against the common-dollar balance in the depreciable fixed asset accounts. The possibility exists, however, of breaking down the depreciation expense account into individual debits by years of origin and adjusting each of these debits separately.

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[54]Controversy still prevails over whether this purchasing-power adjustment or any portion of it becomes realized at some time so as to be properly included in the income statement. Discussion of this question will be deferred until Chapter V.

One final step necessary to reconcile the adjusted income statement with the adjusted position statement requires discussion. Although the current monetary accounts necessitate no explicit adjustment, there has been a loss (gain) of purchasing power on the current monetary assets (liabilities) when price levels rise. One only has to restate the adjusted position statement at the beginning of the year in year-end dollars to realize this fact. Since other items of revenue traditionally have been deemed realized when current accounts have been affected, it would seem proper that these purchasing-power gains and losses should be displayed as realized gains and losses in a special section of the income statement.

In figuring the amount of loss or gain on these liquid assets and liabilities, the beginning year balances are submitted to a full year's adjustment; any change between beginning and ending balances is subject to adjustment for only a half-year under the assumption that the inflows and outflows of these accounts happened evenly over the year. Using this same assumption, Jones has devised the following algebraic formula for computing these purchasing-power gains and losses.

$$X = M_b (P_b - P_a) + M_e (P_a - P_e)$$[55]

X = purchasing-power gain or loss on monetary items
M = total balances of monetary accounts
P = index of the general price level
a = average for the year
b = beginning of the year
e = end of year

By converting each item on the unadjusted statements separately and extending recognition to the purchasing-power gains and losses, the process of adjustment is readily accomplished. Moreover, the amount of detailed calculation is kept to a minimum. While some assumptions

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[55] Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes, p. 25.

necessarily have to be made along the way, the basic accuracy of the statements remains unaffected. Finally, the above procedure terminates in an all-inclusive, completely integrated set of financial statements.

CHAPTER III

INFLUENCE OF COMMON-DOLLAR ACCOUNTING IN THE AREA OF MANAGEMENT DECISIONS

The thought has been advanced in earlier chapters that if adjusted accounting data are to be accepted as useful tools by the users of financial statements, the value of the adjusted data must, in the long run, exceed the cost of obtaining them. It is hoped that the preceding chapter has offered, to some extent at least, an indication of the necessity for and relative ease in securing accounting data converted to a common dollar. The cost of adjustment would seem to be relatively small; attention should now be directed to analyzing the usefulness or value of the data.

Since financial information has significance only to the extent that it illuminates policy decisions and problem areas, this chapter will proceed to investigate the influence of converted data on decision-making by the managements of public utilities. One could not attempt to enumerate all the management decisions touched upon by accounting. Its pervasive influence is felt in numerous areas--(1) long-term credit and capital structure, (2) wages and labor relations, (3) dividends and retention of earnings, (4) expansion and investment, (5) pricing, (6) profit planning, efficiency appraisal, and others.

In this chapter, however, only the first four of these will be discussed. These areas seem to be of particular importance to public utilities. Moreover, they will illustrate the importance of using

adjusted data in management decisions. Yet, the reader should not infer from the discussions in this chapter that accounting data supply the only rationale or even exert the most important influence on these decisions. The sole purpose here is to discuss the influence of accounting data adjusted for price-level changes in the aforementioned realms.

The general approach to be followed in the discussion of each of these policy areas consists of three steps: (1) The first attempts to reason what inflation-influenced policies one might expect to discover during prolonged periods of rising prices. (2) Data gathered both from the public utility sector and its subdivisions and from individual company studies will tend to corroborate or contradict the hypotheses reached in step one. Possible explanations for the expected policies not occurring will be offered and analyzed. (3) Finally, on the basis of insights gleaned from the preceding information, an effort will be made to appraise the potential superiority of adjusted data as a basis for such decisions.

Debt Policy

Debt policy broadly relates to the general problem of an optimum capital structure. Specifically, the decisions made in this area involve the capitalization ratios--the ratios of debt, of common equity, or of preferred equity to total capitalization.[1] In other words, how much capital shall be raised from each of the various classes

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[1]Total capitalization represents the capital supplied by the relatively permanent investors who wish to earn a return on their investment. For the purposes of this paper, total capitalization is the sum of long-term debt, preferred stock accounts, common stock accounts, and retained earnings.

of investors?

During a prolonged period of inflation, the value or purchasing power of a dollar becomes progressively less. The proper course of action, then, would seem to be to borrow money with comparatively high purchasing power and repay the debt with the same number of dollars of lower purchasing power. In this way the debtor would gain an economic advantage in a very real sense at the expense of the creditor, for the debtor could exchange the dollars borrowed for more goods and services than could the creditor when the debt is repaid.[2]

Moreover, the interest charge is payable in the current monetary unit. Thus, as the price level rises, the interest charge in terms of purchasing power paid declines although the dollar amount is the same each year. In real terms an advantage has been gained in that the utility has not had to distribute in real terms to the bondholders the amount that was agreed upon as compensation for the funds received from the bondholders. The significance of this information lies in the influence it might have on debt expansion. Because the interest charge in real terms falls as the price level rises, a utility could borrow more money each year without increasing the real burden of interest.

Another fact that influences the offering of debt securities is the amount of stock equity. In most cases, the stock equity is larger in real terms than the amount shown in historic dollars on the financial statements. Thus, as inflation persists, a subjective estimate of the

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[2]Whether this advantage is permanent, of course, depends on what is done with the amounts borrowed. For example, if the amounts borrowed are simply kept in the form of cash; there is a loss in the purchasing power of the cash as the price level rises which will exactly offset the purchasing power gain when the debt is repaid. However, the two are different phenomena and should be treated separately.

understatement of stock equity might serve as a possible inducement for management to increase debt financing.

For these reasons, with the inflation of the past two decades and the potential for continuing inflation existing in the economy, one would readily expect to observe a large increase in debt financing throughout this period.[3] A cursory glance at the security issues of public utilities would appear to support such a conclusion. For instance, in only two years between 1948 and 1958 did the value of public utility debt securities offered fall below an apparently high 70% of the total public utility security offerings.[4] Conversely, only in the same two years did common stock offerings exceed 20% of the total.

This tendency for debt offerings to exceed common stock offerings by large amounts prevails throughout all sectors of the corporate economy; nevertheless, it provides deceiving proof. Refunding operations account for some of the overwhelming predominance of debt securities among the new security offerings each year. These new issues simply replace old debt securities being retired, in which case the total debt capital remains the same.

Moreover, one must consider sources of capital other than security offerings. In particular, the effect of large amounts of retained earnings on the debt-equity ratio must be recognized. To achieve a more accurate picture of changes in the capital structure of public

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[3]See, for example, Clare E. Griffin, Enterprise in a Free Society (Chicago: Richard D. Irwin, Inc., 1949), p. 435. "Another effect of rising prices and the prospect thereof is to encourage enterprises to obtain funds for expansion by borrowing rather than by the sale of stock, that is, by debt capital instead of equity capital.

[4]Ebasco Services Incorporated, Analysis of Public Utility Financing (New York: Ebasco Services Incorporated, 1950-1957).

utilities, it is necessary to analyze the components of the equity section of position statements for a number of years. Only in this way can one discover the actual trends and changes.

Aggregate Sources of Funds

When the above factors have been taken into consideration, a different pattern from that indicated by a study of security issues alone emerges. Contrary to current belief and expected results, the portion of funds coming from long-term debt holders and stockholders respectively has not changed appreciably in the last twenty years for the public utility sector as a whole. As Table 2 indicates, the portion of capital coming from the senior securities (long-term debt and preferred stock) has actually declined over the period.

A similar situation generally exists among the privately-owned electric utilities in the United States; however, there has been a slight tendency toward the use of more debt capital over the years. From 1937 to 1957 long-term debt as a percentage of total capitalization has risen from 47.6% to 51.7%. The portion coming from preferred shareholders, however, has declined from 14.8% to 11.4% leaving the share supplied by the common stock equity at an almost invariable 37% to 38%.[5]

An exception to this pattern of a relatively constant proportion of debt is the gas utility and pipeline industry where a noticeable shifting to debt capital has taken place. Here the percentage of total capitalization originating in long-term debt has climbed

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[5] U. S., Federal Power Commission, Statistics of Electric Utilities in the United States: Classes A and B Privately Owned Companies (Washington, D. C.: Federal Power Commission, 1937-1956.

TABLE 2

LONG-TERM DEBT, PREFERRED STOCK AND COMMON STOCK EQUITIES AS A PERCENT OF TOTAL CAPITALIZATION FOR PUBLIC UTILITIES[a]

Year	Long-term Debt	Preferred Stock	Total Senior Securities	Common Stock and Retained Earning
1937	44.2%	7.0%	51.2%	48.8%
1942	42.5	7.6	50.1	49.9
1947	39.3	6.9	46.2	53.8
1952	41.8	6.0	47.8	52.2
1956	41.7	5.2	46.8	53.2

[a]Computed from data found in U. S., Internal Revenue Service, Statistics of Income (Washington, D. C.: U. S. Government Printing Office, 1937-1956.

from 44.4% in 1937 to 54.6% in 1957.[6]

One cannot necessarily conclude, however, that this change has occurred as an attempt to take advantage of a rising price level. Not only has the income tax law, which allows interest to be deducted in computing taxable income, given an impetus in this direction; but, moreover, the rapid growth in recent years of a particular segment of the industry--the natural gas pipelines--has intensified the use of debt securities.

In the early years of their existence, the pipeline companies had to raise the greater part of their capital from common stock. As they became an established part of the utility scene and proved to be relatively safe and profitable, debt securities could then be issued with greater ease. Indeed, there was a tremendous expansion of debt

[6]American Gas Association, Gas Facts (New York: American Gas Association, 1949-1958).

capital accompanying the natural growth of the pipeline companies. In 1941 when the pipelines represented only about 16% of the assets of the total gas utility industry, long-term debt constituted only 44.4% of the total capitalization of the pipelines.[7] In 1957, however, when pipeline assets composed almost 40% of the industry assets, the portion of total capitalization coming from long-term debt had risen to 62.2%.[8]

As the pipelines grew and succeeded financially, they attained an "investment status" in the eyes of the public investors comparable to that reached by most of the other phases of utility operations. Consequently, their security issues were no longer considered as speculations; and, thus, they were able to market a very large proportion of new securities as debt issues.[9]

Since natural gas pipelines did not appear on the utility scene to any great extent until the early 1940's, their great expansion and concurrent increasing use of debt capital occurred during the same period in which the price level rose so much. As a result, there is no sure way of separating the effects of rising price levels on debt policy from the effects of the growth of a new industry. Nevertheless, from evidence found in other segments of the utility sector and from the behavior of the utility industry as a whole, it would appear that the increased employment of long-term debt in the total gas utility industry is attributable primarily to the normal expansion of senior capital in

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[7] Ibid.

[8] Ibid.

[9] See, for example, Arthur Stone Dewing, The Financial Policy of Corporations (5th edition; New York: The Ronald Press Company, 1953), pp. 1029-1030.

the natural gas pipeline companies.[10]

Study of Individual Companies

In an attempt to discover whether the tendency of long-term debt as a percentage of total capitalization to remain relatively constant applies to individual utility companies as well as in the aggregate, four utility companies were selected and their debt positions analyzed. Included in the four are one electric utility, one gas company, and two suppliers of both gas and electricity.[11]

The results of this study are shown in Table 3. There did not seem to be any pattern of financing common to the four utilities. Two companies, an electric utility and a gas company, showed an increasing trend toward debt financing. On the other hand, the two mixed companies showed large fluctuations in the portion of total capitalization coming from long-term debt during the fifteen-year period studied. For the period as a whole, however, these two companies displayed either a declining or constant percentage of long-term debt.

The aggregative evidence presented earlier suggests that the expected result of expanding debt financing as the price level rises has not generally occurred. The study of the four individual companies illustrates the varying trends in debt usage that can be found among

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[10]It should be noted that part of this normal expansion of debt may have been the result of regulatory commission insistence on "full" use of debt capital. Regulatory concepts of what is "full" use will be discussed later in the chapter.

[11]The companies selected--Consumers Power Company, Detroit Edison Electric Company, Iowa-Illinois Gas and Electric Company, and Michigan Consolidated Gas Company--were seasoned, mid-western utilities encompassing various phases and scales of utility operations. Although the selection process was somewhat arbitrary, it was felt that these companies were representative of typical utility situations.

specific firms. However, no generalized conclusions can be drawn about the behavior of individual companies. It would seem appropriate, therefore, to inquire as to possible explanations why the expected outcome has not occurred for the utility sector as a whole and why individual firms might vary in their debt policies.

TABLE 3

LONG-TERM DEBT AS A PERCENTAGE OF TOTAL CAPITALIZATION[a]

Year	Electric Utility	Gas Utility	Mixed Company A	Mixed Company B
1939	48.18%	---	---	---
1942	46.60	---	46.56%	50.60%
1945	42.29	45.56%	54.32	48.80
1948	53.23	52.12	46.83	50.74
1951	54.94	62.56	44.24	55.06
1954	55.85	63.67	43.80	48.44
1957	58.74	60.88	49.76	45.72

[a]Computed from data found in annual reports; U. S., Federal Power Commission, Statistics of Electric Utilities in the United States: Classes A and B Privately Owned Companies; U. S., Federal Power Commission, Statistics of Natural Gas Companies (Washington, D. C.: Federal Power Commission, 1942-1954); and Moody's Public Utility Manual (New York: Moody's Investors Service, 1937-1958).

Other Influences on Debt Policy

Of the conceivable reasons for the above phenomena, three present themselves for serious consideration. Regulation restrictions on the issuance of debt might influence the use of senior securities. In addition, the possibility of adverse market reaction on the part of investors, either against the debt issues themselves or against the common stock, could play an important role. A third possible explana-

tion would be the fear of recession or depression and the accompanying decline in earnings.

Perhaps the prime explanation for the general failure of public utilities to use debt financing more extensively as the price level rises is simply that they are not free to do so. Both the federal government through the Securities and Exchange Commission and the state governments through their individual state public utility commissions can regulate the issuance of securities. For example, under Section 7d of the Public Utility Holding Company Act, the Securities and Exchange Commission can bar security issues of utilities over which it has jurisdiction for any of the following reasons: (1) issue not adapted to security structure; (2) issue not adapted to earning power; (3) issue not reasonable or appropriate; (4) existence of unreasonable fees, commissions, or other remuneration; (5) guaranty of improper risk; or (6) detriment to public interest or to the interests of investors or consumers.[12]

Commission regulation can work two ways. For those companies that have not used debt capital fully, commissions encourage and sometimes insist that additional capital be raised via the issuance of debt securities. The reason, of course, is to achieve financial leverage and acquire lower-cost capital. On the other hand, those companies approaching what the commission feels is too liberal a debt position are discouraged or refused permission to expand the amount of their senior securities. The SEC has adopted as a general guide a capital structure with a desired maximum of 50% long-term debt and a minimum of 25% common stock.[13]

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[12]Federal Utility Regulation Annotated (Washington, D.C.: Public Utility Reports, Inc., 1942), pp. 185-219.

[13]El Paso Electric Company, 8 SEC 366 (1940). See also, U.S., Securities and Exchange Commission, In the Matter of the Columbia Gas

On the state level, a similar situation exists. Of the forty-four states having state regulatory commissions, in thirty-nine states the commission has the power to regulate the issuance of securities.[14] The various patterns of debt financing found in individual utilities can probably be traced to some extent to differences in emphasis of one state commission from another on debt policy. Although some state commissions will encourage utilities to use more debt in the early stages of their development, most states also impose maximum limitations on the amount of debt issues. Frequently the limitations on the issuance of debt securities are quite strict. In Wyoming, Arizona, and South Dakota, for instance, total debt capital is limited to an amount not to exceed the amount of capital stock.[15] This requirement has the effect, of course, of keeping the percentage of debt to total capitalization at 50% or below.

Regulation, however, certainly has not been the sole factor responsible for the use of less debt capital than primary emphasis on the inflation factor might lead one to expect. An effective limit on the amount of bonds that can be issued can be imposed by the capital market itself. This market pressure against further issuances of debt securities can take two forms--sluggishness on the part of investors

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System, Inc., Holding Company Act Release No. 9993 (Washington, D. C.: Securities and Exchange Commission, July 25, 1950), p. 2 where the SEC states, "We are in full accord with Columbia that a continuing debt ratio of not to exceed 50% of total capitalization is a desirable objective and every effort should be made to maintain such a ratio."

[14]U. S., Federal Power Commission, State Commission Jurisdiction and Regulation of Electric and Gas Utilities (Washington, D. C.: Federal Power Commission, 1954), pp. 30-31.

[15]Eli Winston Clemens, Economics and Public Utilities (New York: Appleton-Century-Crofts, Inc., 1950), p. 479.

to accept the additional debt securities offered and a possible dampening of the investors' appraisal of the common stock.

Because diversification is an important maxim for institutional investors as well as individuals, a particular company must be careful to space its offerings of various kinds of securities to avoid saturation of the market with a particular kind of security. If a specific type of security--for example, long-term debt--is issued too frequently or in too large amounts, the investors will be reluctant to absorb the issue. In this case, the net receipts to the company may fall thus driving up the effective interest cost of the issue.

In addition to the possible reaction against the debt issues themselves, the market value of the common stock may decline as more debt securities are issued. A reasonable amount of debt in a utility capital structure, say 20% to 30%, is usually looked upon favorably by investors. That is to say, the evaluation of the common stock as reflected in the price-earnings ratio remains unchanged or actually increases.

Beyond this point, however, there is a direct relationship between capitalization and the price-earnings ratios. The smaller the equity section of the position statement relative to the total capitalization, the smaller is the price-earnings ratio. Such a result is not surprising in light of the increased financial risk to the stockholders associated with the issuance of senior securities. The validity of this tendency is supported by an empirical investigation conducted by the Securities and Exchange Commission.[16] In this study seventy of the

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[16]Richard B. McEntire, "The Capital Structure of Electric Utilities," The Commercial and Financial Chronicle, CLXVI (July 24, 1947), pp. 345-346.

most widely traded electric utilities were divided into three equal groups based on the size of their price-earnings ratios. The groups were then compared and contrasted as to capital structures; the group having the highest P/E ratios had the highest percentage of stock equity (lowest percentage of debt) and vice-versa.

Therefore, increased employment of debt financing may ultimately work to the disadvantage of the common stockholder; for as more senior securities are issued, the debt-equity ratio rises and the price-earnings ratio falls. As a consequence, at some point the advantages of financial leverage and possible gains in purchasing power at the expense of the bondholder are counterbalanced by the disadvantage of falling common stock prices caused by declining price-earnings ratios.

The third modifying influence on the issuance of debt securities needs only to be mentioned briefly. Although a secular trend of rising price levels has existed almost unbroken for the past twenty years, there has always remained a fear of a possible recession or depression. Notwithstanding the general stability of utility revenues, with a severe or prolonged downturn in business activity an individual utility company might experience some financial embarrassment if total debt had been expanded as much as a secular inflation might have justified. For this reason utility managements may have been hesitant in increasing the portion of capital arising from debt securities to any large extent.

Effect of Adjusted Data on Debt Policy

From the information gathered and presented in this section, it would seem that utilities as a whole have not altered their debt policies noticeably in the past twenty years of inflation. To the ex-

tent that this inaction has resulted from outside influences such as regulation or from the consideration of other factors such as investor reaction or a possible recession, the use of adjusted accounting data would exert little influence. However, to the extent that the inaction resulted from a lack of understanding of the effects of a rising price level or from decisions of regulatory agencies based on misleading information, adjusted data might shed some new light on debt policy decisions.

One valuable piece of information which a series of adjusted accounting statements would show is the extent of the "gain" on interest payments over a period of years. The disclosure of the reduction in interest costs in real terms might provide management with an indication of the extent to which long-term debt can be increased with the same interest burden in real terms as originally anticipated.

Adjusting accounting data for price-level changes could conceivably have a material effect on another factor which affects the offering of debt securities--the amount of stock equity. With the common equity adjusted to current dollars, utility managements could appraise more readily and accurately the effect of issuing additional senior securities on the capitalization structure. For by using adjusted data, both components of the ratio would be measured by the same unit.

To each of these influences tending to increase the use of debt, adjusted data would draw management's attention. Instead of ignoring these influences entirely or having to make subjective estimates concerning them, management would have complete, objective information. Thus, adjusted data as contrasted to unadjusted data provide both an awareness of these factors and a measurement of their magnitude.

Not all information presented in adjusted statements, however, tends to encourage the expansion of debt capital. For instance, a major item bearing on the decision whether to issue more senior securities is the earnings coverage of the interest charge. In a period of inflation, earnings are usually overstated since costs incurred in earlier years when the value of the dollar was greater are matched against the revenues of the current period when the value of the dollar is less. Therefore, the real earnings available to cover the interest charges may actually provide inadequate protection or may even be negative. In such a case, the use of adjusted data would furnish a powerful deterrent to debt expansion.

In summary, one cannot draw any generalizations as to the precise influence that adjusted data would have on debt policy decisions. To a great extent, utility managements have only limited freedom in this area because of the existence of regulatory agencies. Moreover, the use of adjusted data supplies some information which encourages debt expansion and some information that discourages debt expansion. In the former category would fall the reduction in the real burden of interest over the years and increased stock equities when presented in current dollars. Offsetting these factors, however, is the most important consideration of lowered real earnings when adjusted data are used. All that can be concluded is that in the limited sphere of management decision, adjusted accounting data would provide pertinent and useful information, both pro and con, to be weighed in determining debt policy decisions.

Wage and Bonus Policy

Wage Policy

Perhaps in no area are financial and economic data used or misused, as the case may be, more conspicuously than in the area of wage determination. During the past decade when businesses were exhibiting high profits, labor unions were using the inflation and the higher profits as a basis for increased wage claims. One would expect that as inflation caused increasing distortion in the financial yardstick, the dollar, and thus an overstatement of reported profits, the earnings rates of labor would tend to rise significantly also.

The utility industry and its subdivisions are no exception to this expected trend. In fact, hourly wage rates have risen faster in some segments of the utility industry than in other areas of business. As Table 4 illustrates, hourly earnings in electric and gas utilities have increased about 10% more than in other segments of the economy. During the twenty years since 1937, average hourly earnings of electric utility employees have grown 270%.[17]

To understand the reasons for this tremendous rise in wage rates, one must consider other factors as well as inflation and union demands. One extremely important factor has been advances in productivity. The utility industry has been at the forefront in increasing the man-hour-output of its labor force, which, undoubtedly, has been reflected in utility wage increases.

Another consideration is the regulatory process itself. Wages are included in the costs of operation of a utility; therefore, in theory,

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[17]"Industry Statistics," Electrical World, CXXVII (January 18, 1947), p. 163; CXLIX (January 27, 1958), p. 108.

TABLE 4

COMPARISON OF HOURLY EARNINGS OF WORKERS IN SELECTED INDUSTRIES, 1947 and 1958[a]

Industry	1947	1958	% Increase
Electric and Gas Utilities	$1.35	$2.46	82%
Wholesale Trade	1.27	2.17	71
Manufacturing	1.24	2.13	72
Retail Trade	1.01	1.70	68

[a]Owen Ely, "Annual Wage Increases Versus Inflation," Public Utilities Fortnightly, LXIII (May 7, 1959), p. 697.

as wage costs rise, compensatory changes in rates are made. In this way all wage increases resulting in higher costs are passed on to the consumers of utility services in the form of higher prices. Wage cost increases will only be reflected in higher rates if other costs do not decrease. To the extent, of course, that management is able to offset the higher wage costs by means of operating efficiencies, the total cost of operations will tend to remain constant. As a consequence, no adjustment is made in the prices charged consumers; the benefits of both labor and managerial efficiencies are absorbed by the higher cost of labor.

A divergence between theory and practice occurs because of the presence of regulatory lag. Because rates are not adjusted immediately for every change in cost, increases in labor costs must be borne by the investors in the enterprise until the rates charged are reviewed. Rates are very rarely set retroactively so that the increased costs represent a temporary burden on the investors for the period of time elapsing between the rise in the cost and the adjustment of rates and

permanent burden to the extent of any continued lag.

Nevertheless, it would seem that there has been less resistance on the part of utility managements to granting increases in wages than in other industries. Notwithstanding the above limitations, part of this lack of resistance possibly can be attributed to the fact that management may feel that any permanent increase in cost will be recognized eventually in the rate structure. If this be so, then their sole concern would revolve around the effects of higher rates on the quantities purchased by consumers--a problem of estimating demand elasticity.

In addition to the lack of resistance on the part of managements to wage increases, another perhaps more important circumstance may contribute to rising wages. As in so many other areas, management may not be completely free to resist wage advances because of regulation. Due to the relative essentiality of utility services, many states have laws prohibiting or curbing strikes by utility employees, laws allowing the state to take over the utility in case of strike or threat of strike, or laws providing for compulsory arbitration of the issues.[18] Although some of these laws have been declared unconstitutional or not applicable to companies in interstate commerce, the existence of these remaining laws has reduced utility strikes to a minimum except in the communications field. It is not the intention here to debate the merits of these laws, but merely to point out that their existence does put extreme pres-

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[18]In Michigan the Bonine-Tripp Act places limitations on strikes in public utilities. This act provides a thirty-day period during which strikes are illegal while a fact-finding board appointed by the Governor studies the situation and recommends a solution. Although the recommended solution is not necessarily binding, both the company and the union must negotiate for an additional ten days with assistance from the State Labor Mediation Board. Only when these steps have been exhausted would a strike be legal.

sure on management to acquiesce voluntarily or involuntarily to increased wage costs.

Effect of Adjusted Data on Wage Policy

It would seem that the existence of adjusted data would have little effect on the demands of labor unions; for unions have historically relied on a number of arguments to substantiate their demands--the particular argument used depending on the economic conditions at the time. Among these arguments one can find ability to pay, wages paid by competition, cost of living, and productivity.

If accounting data adjusted for price-level changes were available for general use, one might expect a shifting of emphasis from the ability-to-pay argument to one or more of the others. Ability to pay as measured by a firm's earnings would lose some force as a persuasive argument for wage increases because adjusted data would usually show that profits in terms of real purchasing power have been overstated during the past twenty years of inflation. Thus, assuming the acceptability by management and the general public of the techniques used to adjust accounting data, the appeal of ability to pay would diminish.

On the other hand, unions could still turn to the wages paid by competitors to find backing for their claims to increased wages. This argument has three facets. Wages should be increased to the amount paid for comparable work in other firms or industries; wages should be increased to correspond to the pattern set by the key firm in the industry; or, wages should be increased to the "going wage" for the geographic location in which the firm is operating. Unless the use of adjusted data caused a general widespread resistance to wage increases in all communities, firms, and industries, it would appear that this rationale

for higher wages would remain relatively unscathed by the introduction of adjusted data.

The third case, that of raising wages to meet increases in the cost of living, would not be affected by adjusted financial data of the utilities. On the contrary, deterioration of the purchasing power of the dollar which created the need for adjusted accounting data offers support for the fact that the workers' cost of living has risen also. Adjusted company data, for the most part, would exert little influence on the use of this theme by labor unions.

The thought was suggested above that the availability of adjusted data would only limit the persuasiveness of one of the many arguments historically used by labor to support wage increases, therefore having little effect on labor demands. The influence, however, on management, the general public, and regulatory agencies might be more telling. In a broad sense, adjusted income statements recognize and display the increased cost of corporate living--a point unions frequently neglect to consider and yet a point as essential to wage policy decisions as the cost of living of the workers.

If this information were readily available, management would have facts and figures to combat the union accusations of exorbitant profits. Moreover, a pattern of offering resistance to the demands for higher wages could develop among utility managements. This resistance would be strengthened if the arbitrators also would show an increased awareness of the overstatement of utility profits during periods of rising price levels. If management had financial data recast in a common dollar available, governmental fact-finding agencies and arbitrators could then presumably make more rational decisions and would not

be misled by the overstatement of profits shown by the unadjusted figures. The fact that these bodies had and were using adjusted data might tend to make management more likely to risk a strike.

In summary, the expected rise in wage rates during an inflationary period has taken place as illustrated in Table 4 on page 81. It would appear from the above discussion that the use of accounting data adjusted for price-level changes would not affect the wage demands of labor unions to any great extent. On the other hand, management's will to withstand labor's demands might be increased. Their stand would certainly be reinforced by the knowledge that the outsiders associated with the determination of wage policy were also using the adjusted data in making their decisions.

Bonus Policy

A practice that is becoming popular among industrial corporations and which may eventually extend to the utility corporations also is the policy of paying a portion of the compensation for management services in the form of a bonus based on managerial effectiveness as indicated by the earnings of the enterprise. In this way it is hoped that the prospect of increasing their compensation by increasing the earnings of the business will serve as a stimulus and incentive for efficient operation by the management of the company. During an inflationary period, the earnings of the entity are overstated, measured in terms of constant purchasing power. The question for stockholders to consider, then, is whether management should receive benefits from rises in the general price level because the latter incorrectly influence the measure of their efficiency.

It would seem logical that changes in the prices of specific

commodities and services within a stable general price level should be regarded as proper elements to be included in measuring management effectiveness in generating earnings. For example, management should receive credit for wise forward planning in purchasing assets at below normal prices. Deriving an advantage from seasonal, cyclical, or random fluctuations in the prices of specific goods and services is a tribute to managerial skill. This kind of profit is not eliminated by adjusting the accounts for changes in the general purchasing power of the dollar.

On the other hand, management is charged with the responsibility to use the resources invested in an attempt to increase the net assets or resources of the business. To assess how well this responsibility has been carried out necessitates first determining whether the original resources invested have been maintained. The maintenance of capital simply in terms of dollar totals without regard to the purchasing power of the dollar is a hollow goal. Rather, the owners of the enterprise should be concerned with appraising managerial effectiveness in preserving the purchasing power of the original investment.

To this end the use of adjusted data can offer invaluable assistance. With accounting statements prepared in terms of a constant dollar, one could readily see whether management, in fact, had increased the assets of the business in real terms or whether the net earnings simply represented a loss of the original capital disguised by the falling value of the dollar. Profits due to changes in prices between the time of purchase and sale are illusory if they are due to rises in the general price level. Using accounting data adjusted for general price-level changes supplies the information needed to distinguish between the real earnings broadly attributable to managerial effectiveness and the

spurious earnings attributable to fluctuations in the accountant's measuring unit. Only a bonus policy based on adjusted data will achieve the intended result of rewarding management for the generation of profits which can be traceable to their actions.

Dividend Policy

When faced with the earnings accruing to the shareholders for a particular period, utility managements have two alternatives. Assets generated through profitable operations can be declared and paid out as dividends or can be retained in the business to conserve the resources of the enterprise. The decision with respect to these alternatives is the core of a company's dividend policy.

During a period of continually rising prices, the amount of dividends distributed to shareholders should decline relative to the total amount of unadjusted earnings. Although both figures may increase in absolute terms, one would expect that the relationship between the two--the payout ratio--would fall.

Two reasons for this expectation stand out. Accompanying a rise in the price level would probably be a rising awareness, at least subjectively, that real earnings are not as great as those shown in the accounting records. This subjective feeling might cause managements to appraise more carefully their dividend policies.[19] The second cause for expecting a falling payout ratio, which may or may not exist independent

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[19]Failure to recognize the existence of inflated profits, either objectively or subjectively, may lead to disastrous results. In Argentina failure to make even subjective adjustments for rapidly increasing price levels caused companies to pay out pseudo-profits in dividends resulting in a serious deterioration in liquidity; liquidity deteriorated the most in years when the inflation was greatest. See J. E. Spinosa Cattela, "The Impact of Inflation on Argentine Business Enterprise," The Review of the River Plate, CXI (March 18, 1952), p. 19.

of the first, stems from real circumstances. The funds recovered through the earning of depreciation charges based on historic costs will simply not be sufficient for the necessary replacement and expansion in the utility industry in periods of rising prices. Thus, individual companies may well find themselves short of capital funds. One of the first sources to which they could turn for additional capital would be the earnings of the enterprise. As prices rose, an increasing amount of earnings would be retained in the business to provide for the necessary real capital replacement and expansion.

Study of Industry and Company Statistics

Table 5 presents the payout ratios of some aggregate groups of selected public utilities. Over the twenty-year period covered there has been a decline in the payout ratio. Year to year changes, however, present no close correlation with changes in the price level. Only when the data are grouped into relatively homogeneous periods of time and the average payout ratio for the period is computed does any descending pattern appear.

In the years since the Korean War when the amount of inflation was relatively small, there has been a noticeable retardation in the rate of decline and in many cases an actual increase in the payout ratio. This fact would seem to indicate some relationship between the rate of increase in the price level and the rate of decrease in the payout ratio. In those periods when the price level rose the least, payout ratios declined the least or actually increased. Conversely, when the price level made its greatest climb, payout ratios made their largest descent. Again it should be emphasized, however, that this relationship appears only when the data are grouped into period of years; the rela-

tionship does not hold for individual years.

The reasons for the existence of only a general relationship between price-level changes and payout-ratio changes are numerous. So many factors play a role in the determination of dividend policy that the influence of one of them may be scarcely perceptible. For instance, the amount of liquid assets governs, to a large extent, the amount that can be paid in dividends. Anticipating the needs for liquid assets involves a prediction of the general business climate plus specific industry and company conditions.

TABLE 5

DIVIDEND PAYOUT RATIOS FOR THE PUBLIC UTILITY INDUSTRY AND SELECTED SEGMENTS

Period	Total Public Utilities[a]	Electric Utilities[b]	Moody's 24 Selected Utilities[c]
1937-1940	149.7%	78.8%	89.1%
1941-1946	74.4	73.1	79.8
1947-1951	70.6	72.3	71.8
1952-1947	85.1	72.7	71.2

[a]Payout ratio for both common and preferred stock computed from data found in U. S., Internal Revenue Service, loc. cit.

[b]Payout ratio for common stock computed from data found in U. S., Federal Power Commission, Statistics of Electric Utilities in the United States: Classes A and B Privately Owned Companies.

[c]Payout ratio for common stock computed from data found in Moody's Public Utility Manual.

In addition to the need for additional capital, the company must consider tradition and investor expectations. Rightly or wrongly, it has been a general belief that the utility investor sacrifices both

growth potential and inflation protection compared to the investor in industrial companies. Therefore, the utility companies are obliged to offer higher dividend yields than industrial companies with the same earnings. Thus, utilities are expected to have a higher payout ratio.[20]

Moreover, the desire on the part of utility managements for regularity in dividend payments has had a bearing on dividend policy. By maintaining dividend payments fairly regular in both timing and amount, management hopes to induce a sense of loyalty among a relatively permanent group of stockholders. Steady dividend declaration and payment appeals to the investor rather than the speculator. The former type of security holder is usually more willing to respond to the call for additional equity capital--an important factor for most utilities having to go to the capital market repeatedly. Equally important in the capital market is the higher credit reputation stemming from regularity in dividend payments. A good credit rating is essential in obtaining access to relatively inexpensive debt capital.

All of these modifying influences alter the expected direct relationship between earnings and dividends. Likewise, they would exert strong tempering forces on any general downward pressure on the payout ratio arising from increases in the price level year by year. As a consequence, only when the whole period or large segments of it are examined can any pattern be perceived.

For an individual company, the many other influences mentioned above overshadow any tendency for a decline in the payout ratio caused

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[20]For example, see Benjamin Graham and David L. Dodd, Security Analysis (New York: McGraw-Hill Book Company, Inc., 1951), p. 274, where these two noted security analysts view the payout ratio for public utilities as being between 80-85% of earnings available to common stock.

by a rising price level. Therefore, as can be seen in Table 6, it is difficult to make any significant generalizations concerning payout ratios from studying the four individual companies. In each of them, however, there does appear to be a decline in the payout ratio in the 1947-1951 period. This decline may reflect attempts to adjust dividend policy to the comparatively large rises in the price level beginning in 1946 and running through the end of 1951. Each company shows a subsequent rise in varying degrees in its payout ratio for the post-Korean War period when average price-level increases amounted to about 2% a year.

TABLE 6

COMMON DIVIDEND PAYOUT RATIOS FOR FOUR SELECTED UTILITY COMPANIES[a]

Period	Electric Utility	Gas Utility	Mixed Company A	Mixed Company B
1941-1946	87.3%	82.8%[b]	77.6%	89.7%[c]
1947-1951	68.8	76.1	71.9	70.2
1952-1957[21]	75.2	91.5	74.0	81.4

[a]Computed from data found in annual reports.

[b]Period covers only 1944-1946.

[c]Period covers only 1942-1946.

[21]If the provision for deferred taxes, a charge arising in recent years, is not considered as a valid revenue deduction, the dividends should be related to net income before deferred taxes. A restatement of the payout ratios along these lines discloses significant changes for the 1952-1957 period for the Electric Utility and Mixed Company A. Their payout ratios for this period are approximately 10% lower under this assumption. This results in a continuation of the trend toward a declining payout, thus tending to add further support to the arguments advanced earlier.

Capital Maintenance v. Capital Attraction

Perhaps no dilemma facing utility managements is so perplexing as that of choosing between maintaining the real capital invested in the enterprise and impairing the ability of the concern to attract additional capital. Management must try to steer a course between the Scylla of paying out real capital in the guise of dividends and the Charybdis of being unable to obtain new capital on reasonable terms; for there is a direct relationship between payout ratios and the ability to market new equity securities.

Firms maintaining relatively high, regular dividend payouts can obtain new funds with greater ease and on better terms than those firms with low or vacillating payouts. This circumstance holds true particularly for public utilities. The reasoning behind this attitude in the capital markets is that utilities are not usually growth companies in which earnings retained in the business could be used to generate great amounts of additional earnings. Therefore, utility investors look for a steady stream of dividend payments embracing all or practically all of the reported earnings of the period.

However, as the price level rises, reported earnings tend to overstate the real earnings of the utility measured in terms of a constant dollar. One might well expect to find management in the position of having to retain increasing amounts of earnings to avoid economic hardship. From the information presented, it was noted that only to a slight degree has such an event taken place; utilities have continued to distribute large percentages of reported earnings to their shareholders.

It would seem that utilities have been able to resolve the

capital maintenance-capital attraction dilemma by favoring capital attraction. Keeping dividend payments high, in many cases near or over 100% of real earnings, enables capital requirements to be met through the issuance of additional securities, and dividends can be paid out of capital almost indefinitely.[22] New stockholders make their investments in current dollars, basing their decisions whether or not to invest on the prospect of dividends being paid in current dollars. However, the dollars of the new investor, in terms of the interest in the company that can be acquired, are treated as equals to the dollars of the old investor although the latter may have been worth twice as much in purchasing power.

Three conditions could possibly arise which might tend to curtail the indefinite continuation of this process. The first, of course, would be a decline in the price level occasioned by a recession or depression. Secondly, the process would rapidly cease if the new shareholders became reluctant to invest because they feared that the value of <u>their</u> equity would shrink in the future, just as that of the older stockholders had in the past. Finally, a curbing of this procedure would also take place if the old stockholders protested vehemently enough to management about the protection of their real equity.

A prolonged decline in price levels, of course, has not taken place. New stockholders are still investing in public utilities, and there seem to have been no concerted efforts made on the part of the existing stockholders to protect their real investment.

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[22]As one author has suggested, companies can borrow from Peter to pay Paul and then borrow from John to pay Peter, etc. See Russell Bowers, "Business Profit and the Price Level," <u>The Accounting Review</u>, XXVI (April, 1951), p. 177.

Inasmuch as none of the three circumstances has exerted much countervailing force either individually or collectively, utilities have been able to escape any severe shortages of capital for replacement and expansion. They are able to keep the dividend payout ratio high by paying out capital in the guise of dividends. The high payout ratio attracts new investors and the process continues.[23]

Effect of Adjusted Data on Dividend Policy

The benefit of accounting information rests on its ability to call attention to significant facts. This statement applies with equal truth to adjusted accounting data, particularly concerning dividend policy. Adjusted data would point out to shareholders and managements the very high payout ratios resulting from present dividend policies when the costs matched against revenues are measured by the same yardstick. In fact, in some cases, the payout ratio has been more than 100%.

For the four public utilities whose statements were converted to common dollars in this study, for example, common dividends exceeded the real earnings available in a number of years. The electric company paid over 100% of earnings as dividends in thirteen of the nineteen years studied prior to 1957; the gas company, three years out of fourteen examined; one mixed company, seven years out of seventeen considered; and, finally, the other mixed utility, two years out of the sixteen years investigated. It is interesting to note that the last utility mentioned, which has had only two years of "overpayment" of dividends,

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[23]The only long-run hope for a solution to this dilemma lies in a recognition of changing price levels in the rate structures set by regulators. A discussion of this point, however, will be deferred to Chapter V.

operates in two states which have recognized the need for adjusting allowable rates to compensate for the effects of price-level changes. Moreover, it was the only company looked at and one of only a few in the country that made some attempt to acknowledge explicitly "fair value" depreciation on their financial statements.

Information such as that described above might lead to some decline in dividend payouts. To the extent that the high payout in real terms results from management's unawareness of the effects of price-level changes on reported data, one might expect some corrective action via lowering the payout ratio to be taken. On the other hand, where the policy of paying high dividends, in spite of the possibility of depleting the real capital of the enterprise, has resulted from a conscious decision on the part of management, adjusted data would probably exert little influence toward reducing the payout ratio. Such a decision might be made to resolve the capital maintenance-capital attraction dilemma outlined in the previous section. If this be the case, all that adjusted data could accomplish would be perhaps to occasion a review of the decision based on more objective and more accurate information.

Information on capital maintenance and dividend payouts would be very enlightening to stockholders to say the least. The effect on their actions, however, is more difficult to predict. At worst, a strong bearish trend in the prices of utility stocks could take place to compensate for the dividends being paid out which actually are a return of capital. The extent to which the above would take place, of course, would depend on the investors' appraisal of what the adjusted payout ratios of other firms and industries would be. At best, the use

of adjusted data might lead to an easing of stockholder demands. In other words, utility shareholders might be willing to accept less in dividends as a percentage of earnings without much undue adverse market reaction, provided they could see that their capital equity was being maintained.

Inasmuch as replacement and expansion are important to utilities, ability to attract new capital ranks high on the list of management goals. Moreover, because the utility investor is usually interested in current income first and in appreciation only secondarily, large dividend payments rank high on the shareholders' list of aims. With these two pressures reinforcing each other, adjusted data probably would cause little change in dividend payout when first introduced. Only over a period of time would one expect to find any dampening of stockholder demands or lessening of the dividend payout on the part of managements.

Investment and Expansion Policy

In any discussion of investment policy, it is necessary, at the outset, to clarify exactly what investment is being considered. In view of the fact that this chapter concerns management decisions, the term will be interpreted primarily as investment in enterprise assets--land, buildings, equipment, etc.,--rather than investment in securities by investors.

It is recognized, of course, that the two are often closely related. Before managements can invest the funds of a business in the various classes of assets, these funds must first be either generated internally or acquired from external sources by means of security issues. Herein lies the heart of the capital maintenance-capital attraction

dilemma.

In Chapter V more attention will be focused on the effect that adjusted data might have on investors' willingness to invest in public utilities. For the purposes of this chapter, however, we are interested in managements' decisions on reinvestment and expansion of the enterprise assets.

Effect of Accounting Data

In order to ponder the probable effect on investment of unadjusted data vis-á-vis adjusted data, one would first have to isolate the factors which influence the investment decision. To do this completely would entail a separate study.[24] Therefore, all that is proposed to be done here is to summarize in general terms the major factors.

Any capital investment is made primarily on the basis of profitability. The latter, in turn, involves an estimation of future profits. In addition to a careful analysis of future demand conditions, managements' estimates of future profits may often be colored by the present state of business confidence. It is at this point that financial statements, particularly the income statement, can exert an influence. The earnings of the current period probably rank quite high on the list of factors determining the state of business confidence and thus on the subjective judgments as to future profits and profitability.

If this be the case, then the use of unadjusted net income figures would tend to overstate the case for expansion during the periods of a rising price level and understate the case for expansion

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[24]For a good discussion of the economic aspects of capital budgeting and planning, see Joel Dean, Managerial Economics, pp. 549-610.

during a period of deflation. The overstatement of earnings usually accompanying a rising price level serves as a stimulus to investment that in the light of real earnings might not be warranted:

> Rising prices will lead to increased investment (not only in monetary terms, but, due to the normal shape of expectations, also in real terms). Falling prices will lead to decreased investment as profit expectations decrease.[25]

As a result of this influence, unadjusted accounting reports may well serve as a contributing factor in the maldistribution of resources. The real argument for adjusted data is found in allocating real resources among various possible alternatives. If the real resources are being allocated to industries, firms, or individual investments on the basis of unadjusted dollar earnings, an uneconomic apportionment of the capital may result. To the extent that calculations of present profits have an indirect effect on capital investment decisions and the allocation of resources, profits determined by matching costs expressed in the current dollar against the current revenues would probably be better.

In general one would expect that the use of accounting data adjusted for price-level changes would exert a countercyclical force. For example, the subjective bias toward expansion arising from the usual overstatement of reported earnings during inflation would be lessened by the lower earnings rate displayed in the adjusted data. Conversely, some of the prejudice against expansion because of poor reported earnings performance in a recession might be erased by a more accurate statement of profits in terms of constant purchasing power.

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[25]Walter Froehlich, "The Role of Income Determination in Reinvestment and Investment," The American Economic Review, XXXVIII (March, 1948), p. 85.

In the same way, sales trends, either up or down, would be more accurately reflected under common-dollar accounting.

Other Investment Influences and Adjusted Data

It must be noted from the above discussion that the relationship between earnings reports and investment is a very roundabout one. Reported earnings enter the investment decision only indirectly through their influence on judgments and expectations. Even this indirect influence, however, may be tempered or offset by other factors associated with the use of adjusted data--specifically, the impact of taxation and regulation.

If, for example, price-level adjustments, particularly for depreciation costs, were recognized as valid deductions in computing taxable income, amounts paid in taxes by individual capital-intensive companies would probably decline. E. Cary Brown argues that this reduction in taxes during inflationary periods would offset any adverse effect on expectations that lower real profits might have exerted.[26] He assumes, however, that the tax rate would remain unaltered; if the rate were adjusted to maintain the same aggregate revenue, the amount of tax reduction would be lessened. Nevertheless, one would expect utilities to benefit to some extent since their depreciation charges, relative to other industries, comprise a large percentage of total revenue deductions.

Little work has been done in studying profit and tax effects on the investment incentives of corporate management. Thus, all that

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[26]E. Cary Brown, Effects of Taxation: Depreciation Adjustments for Price Changes (Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1952).

can be said is that if price-level adjustments were recognized for tax purposes and if tax rates were not changed, the subsequent reduction in taxes would probably offset the depressing effects of a lower profit showing. The main point to be emphasized is that the exact effect of adjusted data on business confidence may depend on whether they are recognized for tax purposes.

Perhaps the most important element connected with investment decisions and price-level adjustments alike is the regulatory atmosphere. Should a utility's rate base, for instance, be computed in current dollars, investment during periods of recession or depression might be encouraged. Inasmuch as changes in the value of the dollar were being recognized by regulatory commissions, utility managements would know that any investment made in periods of declining price levels would be accorded equal treatment, in terms of purchasing power invested, with investment at higher price levels. Utilities, therefore, buying capital equipment at lower prices would not have to fear that their rate base would remain low because of these purchases if the price level increased.

On the other hand, non-recognition of increases in the general price level in the rate structure may accentuate the misallocation of real resources caused by the overstatement of profits. Prices of utility services would be based on unadjusted costs in a period when general costs were rising. The resulting underpricing of utility services in real terms would bring about more use of utility resources than would be economically sanctioned if consumers were charged the real cost of the service. This excessive use of utility resources would necessitate further investment, thus encouraging an uneconomic expansion of the business. Failure to expand rapidly enough would result in an overloading of the service potential causing an unavoidable decline in the

quality of service and, perhaps, finally in an inability to supply the service requested due to the increased demand.[27]

Unless changing price levels are considered by regulatory agencies in setting rates, a conceivable shortage of utility investment might occur simply because utility managements would be reluctant to invest enough to meet the pseudo-economic demands for additional service. To date such a scarcity in this country has been avoided, due primarily to three reasons. First, the yearly rate of inflation in the United States has been moderate relative to other countries. Second, in many instances, price-level changes have been given some recognition, albeit rather haphazardly, by regulatory agencies.

The third of these explanations is that expansion and investment are determined in public utilities sometimes more by need and regulatory action than profitability considerations. Most regulatory agencies will require that a utility have physical capacity ready to meet any area demands made upon it for services at the prevailing rates. If, because of inflation, an owner of a private business felt his equity and earnings would be diluted through raising new capital for expansion, he probably would not expand. Not so, however, with public utilities where such investment would often be compulsory.

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[27]Between 1945 and 1952 Argentina experienced a fourfold inflation. Because the price-level increases were not reflected in utility rates, the demand for electricity became almost insatiable. The electricity famine brought about by the demands of the overextended electric light industry finally necessitated rationing of electric power in April, 1952. See Jack Winocour, "Argentina's Economic Crisis," Fortune, XLV (May, 1952), p. 208. As late as 1957 in Buenos Aires, "local utilities are forced to cut off electricity periodically in residential and shopping districts in order to service overworked generators, and industries are being crippled by increasingly severe rationing.""The Business Globe: Argentine Power," Fortune, LV (April, 1957), p. 96, 99.

Summary--Effect of Adjusted Data on Investment Decisions

Barring any influences of taxation and regulation, one could probably say that the use of adjusted accounting data would tend to have a leveling effect on investment over the business cycle. Through their influence on the expectations of utility managements as to the future, lower real profits during inflationary periods would tend to curb investment and vice versa. The effect would be greatest, of course, on those companies that assume the dollar is stable and act accordingly.

On the other hand, many companies may recognize the instability of the dollar but feel that the loss from not investing is as great or greater than any dilution of earnings from investing. In other words, the loss of purchasing power by holding idle cash may be much larger than the loss in real earnings from investing. The effect of price-level adjustments on the decisions of these utilities one would expect to be quite negligible.

Nevertheless, the influences of taxation and regulation cannot be ignored. The thought was advanced that if price-level adjustments were recognized for tax purposes, the stimulus that might arise from the increased funds from tax reduction would offset any depressing effect lower profits might have in an inflationary period. It would seem rather improbable that such a stimulus would offset the effect of a series of reported real losses, however. Thus, the net influence of taxation depends on a number of debatable assumptions.

To the extent that accounting data adjusted for price-level changes affect the rates charged utility customers, a moderating influence on utility investment over the business cycle would result. There would be no penalty for investment in low-cost periods. Moreover, one

might expect to find a relative decrease in demand for utility service due to higher rates in high price-level periods and the converse in low price-level periods.

One would expect a propensity in the opposite direction, however, if price levels were not so acknowledged by the regulatory agencies. Larger amounts of investment would be necessary both in real and dollar terms--in real terms to meet the additional demands made on utility services due to "bargain" prices and in money terms to cover the higher dollar cost of reinvestment to replace worn out equipment. The above discussion suggests that a shortage of physical facilities and an accompanying decline in the quality of service could result. It remains a moot point whether existing service and service performed in the past might not have suffered somewhat because managements have been reluctant to replace obsolete equipment until it was absolutely necessary to do so.

In brief, where utility investment is highly regulated or even compulsory, the effect of adjusted data would be dependent to a large extent on the regulatory atmosphere. In the area of investment which is subjected to tests of profitability, one might expect that adjusted data would influence policy decisions. In all circumstances, however, adjusted data would supply relevant information as to what is taking place in real terms.

Summary

In an attempt to rationalize what effects accounting data adjusted for price-level changes might have on management decisions in the public utility industry, this chapter investigated four illustrative policy areas. The main conclusion reached is that the adjusted data do

supply information apropos to these decisions. The adjusted data would be particularly useful in the areas of debt policy, bonus policy and dividend policy.

On the other hand, the use of adjusted data by utility managements, apart from other influences, would not induce any radical changes in the direction one might reason that the policies would move during an inflationary period. The reason for this is two-fold. In the first place, adjusted data supply information which may influence the policies in a number of ways. For example, price-level adjustments provide some information favoring the expansion of long-term debt and other information which would act as a deterrent.

Secondly, and perhaps most significant, is the effect of other factors bearing on management decisions. In practically all of the decisions examined, the degree to which management could respond to the influences of common-dollar accounting would depend to a large extent on the reaction to it by investors and governmental agencies. It is, of course, impossible to predict the response of investors and governmental agencies. Nevertheless, it would seem appropriate to investigate the influence of common-dollar accounting in the areas of investor and governmental decisions. This task becomes, therefore, the purpose of Chapters IV and V.

CHAPTER IV

INFLUENCE OF COMMON-DOLLAR ACCOUNTING IN THE AREA OF INVESTOR DECISIONS

Just as management must choose between alternatives in making real capital investment decisions, the security investor must do likewise. The primary function of investors is to allocate financial resources among the diverse companies and industries vying for these funds in the capital markets. Their decisions, therefore, have tremendous significance in the allocation of a nation's real resources inasmuch as the nature and quantities of various goods and services produced in our economy depend to a large extent upon the investors' decisions as to which industries and firms will receive their financial support.

To the extent, therefore, that investors base their decisions on misleading information, they may effect a misallocation of real resources. If investors misinterpret the desires of consumers expressed in a market economy, economic factors may be channeled into the production of goods and services where the relative demand is less. The net result would be an unncesssary dissipation of the productive factors.

It is a thesis of this chapter that financial statements not properly adjusted for price-level changes are likely to be so distorted as to cause misinterpretation of business reports by investors. Such misinterpretation may well result in uneconomic investor decisions. With heterogeneous dollar costs and revenues mixed up in the income statement, investors could hardly be expected to choose prudently

either on their own behalf or in the interest of the efficient apportionment of resources between enterprises and industries. For instance, accounting statements unadjusted for the varying price level may often conceal the fact that dividends exceed earnings stated in real terms and thus may be in part a return of the initial investment. The investor cannot wisely administer his resources if he is not cognizant of the distinction between what is capital and what is income.

The purpose of this chapter is to analyze the influences that adjusted data might exert on these investor decisions. Primarily, this study will focus its attention on the fixed-income investors--bondholders and preferred stockholders--and the residual equity providers --the common-stockholders. These groups represent the relatively long-term capital suppliers seeking a return on their investment. Thus, one would expect that their investment decisions would be carefully weighed, using many kinds of business information.

Bondholders and Preferred Stockholders

Bond investments and preferred stock investments are usually made in anticipation of receiving a relatively sure but fixed return. The fixed-income security, however, has the return fixed only as to dollar amount. As the price level rises and the purchasing power of the dollar declines, therefore, the fixed income becomes a variable income in real terms, declining in real value with each rise in the general price level.

To protect themselves against the loss of real income caused by inflation, fixed-income security holders should try to compensate by raising the nominal rates charged for their funds--the interest rates and preferred stock dividend rates. One would expect, as a consequence,

to find a close correlation between interest-rate movements and changes in the price level. As the bond investor became more aware of inflation, one would expect him to be more reluctant to lend except on a short-term basis or at much higher rates. Because of this shift to shorter-term holdings, long-term interest rates should rise and, conversely, bond prices should fall.

Unfortunately, it is practically impossible to separate the effects of the natural forces of supply and demand on interest rates from any effects of a rising price level. That is to say, during a period of mild inflation the economy is usually prosperous, being at or near full employment. As a consequence, the demand for financial resources tends to grow more rapidly than the supply of funds available, and the price of money--the interest rate--tends to increase unless offset by artificial increases in supply due to deliberate government policy. This action would take place independent of any rise in interest rates to compensate for price-level changes. In the short run the ascribing of a rise in interest rates to one or the other of these factors is practically impossible.

Even over a period of years, however, there seems to be no clearcut, close relationship between changes in the price level and rates in the money markets. In his theoretical and empirical study of this problem, Professor Morton concluded that no long-run inclination exists for the general price level to hold any concrete relevancy to the return required on capital investment.[1] His study indicated that the money market can make adjustments only for expected inflation and

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[1]Walter A. Morton, "Rate of Return and the Value of Money in Public Utilities," Land Economics, XXVIII (May, 1952), pp. 91-131.

not for the inflation that has already occurred.

> The view that the market cost of money automatically compensates for realized inflation is a simple fallacy arising out of misunderstanding of the theory of the relation between money, interest, and prices. Except for short periods when expected inflation is being discounted, the money market does not permanently raise security yields because of inflation.[2]

Other Influences on Fixed-Income Investments

As indicated above, one of the main reasons for a lack of any distinctive relationship between interest rates and price-level changes is that only expected inflation can be discounted. The new investors set the current rates needed to induce them to commit their funds. The new investor looks only to the future; he pays inflated dollars for the promise of an interest return paid in current dollars of the future. The money market, which establishes the interest rates, consists, in essence, of a large number of these exchanges--inflated dollars for promises to pay in inflated dollars: "The new investor suffers no loss (except in the case of further future inflation) because he invests in inflated dollars and receives inflated dollars."[3] The new investor will continue to commit funds as long as the yield, current dollar income over current dollar investment, is satisfactory.

Nevertheless, the new investor can take into consideration any expected inflation in the future. Professor Morton's study showed a few brief periods when expected inflation did seem to be discounted by fixed-income investors. Such a period occurred, for example, during the Korean War prior to the Federal Reserve-Treasury accord in March, 1951. On the whole, however, in the light of two decades of an almost contin-

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[2] Ibid., p. 113.

[3] Ibid.

uously rising price level, even expected inflation has not been reflected to any great extent in the level of interest and preferred dividend rates. As one author concluded, "Continuous expropriation of past investors will not deter new investment unless and until the new investor loses confidence in the future."[4]

Indications are that such loss of confidence in the future stability of the dollar has not occurred. Evidently, the rather slow continuous inflation that has taken place in this country has not scared the investor sufficiently to cause him to demand higher rates for price-level protection. Protection from rising prices through higher rates has been the case, however, in some of the South American countries where inflation has progressed more rapidly.[5] Perhaps investors have believed that the inflation loss has been borne by the unfortunate past investors and will not recur and affect new capital commitments--a type of "it can't happen to me" philosophy.

In addition to the above, other reasons can be advanced to explain the sustained willingness of investors to buy fixed-income securities. The possibility of incurring purchasing-power losses from not investing was mentioned in Chapter III. Moreover, the holding of bonds and preferred stock serves as a hedge against short-term deflation. In retrospect, it would appear that during the last twenty years such a hedge was not necessary; however, this fact does not detract

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[4]Clarence H. Ross, "Responsibility of Utility Management with Respect to Depreciation," Public Utilities Fortnightly, L (October 23, 1952), p. 614.

[5]In Brazil where the price level has increased more than 250% since 1948, the effective interest rates on loans range up to 25% annually. See Wilfred May, "Brazil--Inflated Giant," The Commercial and Financial Chronical, CLXXXIV (August 23, 1956), p. 781.

from its importance as a motivating factor at the particular time the investments were made.

Further explanation for the interest in monetary earnings as opposed to real earnings on the part of fixed-income security holders can be found in the nature of the utility industry and in the nature of the bond investor. The stability of the utility industry may provide safety of money income and principal which may offset the desire for real dollars. The safety factor may assume greater importance if the investors are led astray by the erroneous belief that regulation means investment security.

To a large extent the fixed-income security investors comprise institutional investors whose assets and income are recorded in inflated dollars but who also pay their liabilities and dividends in inflated dollars. The concern of these investors with the effects of a rising price level on their investment policies is, understandably, minimized since the purchasing-power risk has been passed almost entirely to policy holders or depositors. For example, in 1954, life insurance companies held between 60% and 65% of the bonds of all the private utilities.[6] In 1958, the United States life insurance companies owned approximately one-third of the total outstanding debt of the nation's public utility companies and nearly two-fifths of the railroad long-term debt.[7]

For many of these institutional savers, fixed-income investment is practically the sole type of security investment open to them.

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[6] Fergus J. McDiarmid, "Inflation and Utility Financing and Regulation," Public Utilities Fortnightly, LIX (June 20, 1957), p. 883.

[7] Life Insurance Fact Book, 1959, (New York: Institute of Life Insurance, 1959), p. 74.

Only since 1951 have life insurance companies been allowed to invest in common stocks and then only to a limited extent; common stocks accounted for a mere 2.4% of total life insurance assets in 1958.[8] Similarly, banks are legally required to buy bonds. In summary, then, the character, both financial and legal, of these institutions tends to direct their investment interest to reported monetary earnings, notwithstanding the fact that real earnings may be falling or actually negative.

Protective Features in Bond Contracts

It would be misleading to imply that bondholders and preferred stockholders have remained completely passive toward their inflationary losses. Although little evidence exists indicating a rise in interest rates to compensate for rising price levels, one might speculate as to the influence that inflation may have had on other elements of the bond contract--specifically, maturities, warrants, and conversion features.

One on-the-scene observer, a vice president in charge of the investment program of a large life insurance company, has noticed a preference for shorter maturities among bond investors in recent years:

> There are signs around that the standard type of utility bond widely used during the last three or four decades has to some extent outworn its welcome in the eyes of institutional investors today . . . . There is a growing yield spread between these so-called high grade 30-year bonds with no amortization and high-grade industrial bonds of generally shorter maturities and containing substantial sinking funds. (Italics mine).[9]

While this yield spread in favor of the industrial bonds may reflect differences in the supply of and demand for the two types of bonds, the possibility of price-level influences should be mentioned.

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[8] Ibid., p. 80.

[9] Fergus J. McDiarmid, "The Crisis in Bond Financing," Public Utilities Fortnightly, LX (November 21, 1957), p. 831.

In an inflationary period, fixed-income security holders may tend to be more reluctant to subject their capital to lengthy periods of possible purchasing-power loss.

Other features prevalent in fixed-income securities, particularly those purchased by institutional investors, which offer some protection against inflation is the privilege to convert into common stock or to subscribe to common stock through stock warrants. For companies legally barred from common-stock investment, these features in bonds and preferred stock contracts provide an avenue to achieve at least part of whatever protection common stocks offer against a rising price level. This limited protection comes from the fact that convertible bond prices tend to move upward with increases in the market price of the common stock, and stock warrants increase in value as the common stock price rises. Again, there is little proof that price-level changes definitely caused this increased attention to convertible issues, but it would seem logical that inflation protection might have been an important motivating factor.

Effect of Adjusted Data on Bondholders and Preferred Stockholders

Much of the discussion so far has concerned the nature of the fixed-income security investor. The purpose of this has been to suggest that accounting data adjusted for price-level fluctuations would probably cause little change in the general decisions of these investors. For the most part they are institutional investors who, for reasons mentioned above, are mainly motivated by considerations of monetary earnings and not real earnings. In other words, their investment in fixed-income securities is made by purposeful intent and not through an un-

awareness of the risks of a rising price level.

On the other hand, the adjusted data might prove helpful in the selection of the individual companies whose securities are to be purchased. In analyzing the relative safety of their investment, bondholders and stockholders might be influenced to some extent by the facts disclosed through price-level adjustments such as the stock-equity ratio expressed in real terms and adjusted earnings. For instance, a prime consideration of a bond investor is earnings coverage of the interest charge. While one would grant that the monetary earnings are of major importance to these investors, it would seem that their evaluation would be modified if it were found that in real terms the earnings were barely adequate to support interest charges. Similarly, to the extent that mortgage clauses in the indenture provide security for the bond issue, inadequate depreciation in real terms on the pledged assets might exert some influence on their decisions.

To the degree that the institutional investors attempt to protect themselves from inflation by purchasing fixed-income securities with conversion features or warrants, one would expect that a part of their evaluation of a particular convertible would depend on their appraisal of the potential performance of the common stock in the market. In this case, they would be concerned, to a large extent, with the same factors as the equity investor. The influence of price-level information on common stockholders is considered next.

Common Stockholders

The view was propounded in an earlier section of this chapter that the broad economic mission of the investor is one of allocating financial resources. Common stockholders play a crucial role in the

execution of this function. On them falls the task of apportioning the risk or venture capital so important to the development of a free enterprise economy.

For them to carry out this responsibility intelligently means that heavy reliance must be placed on comparable data between firms and between periods of time. Accounting statements adjusted for price-level changes provide better comparability than the unadjusted data. When unadjusted statements are used, three assumptions are being made implicitly: (1) accounting methods are the same between firms and between periods, (2) the effect of inflation on any two companies is the same, and (3) the impact of changing price levels on any single company over time is negligible.

From evidence presented in the preceding chapters and the empirical studies referred to, one must conclude that the latter two assumptions are false and, hence, restrict accurate comparisons. Although adjusted statements have no direct impact on the first assumption, the frequently unrecognized limitations imposed on comparability by the other two would tend to be alleviated. Moreover, restating net income in terms of the current dollar would show what was earned on a basis comparable to other incomes received--wages, interest, rent, etc. Investors could then more accurately compare the opportunity costs of their investments, an important consideration in making their decisions.

As was suggested in Chapter I, stockholders cannot be expected to make their own adjustments for price-level changes to any great extent. Many equity investors probably lack the technical ability to do so; practically all stockholders lack the necessary basic information with which they would have to work. Professor Ralph C. Jones in his

most recent book viewed this situation with alarm:

> From this it follows that company managements and the accountants who audit the financial statements assume a heavy social responsibility when they report earnings on common stock at rates generally regarded as ample or even excessive without either indicating the illusory character of such gains or providing supplementary information which would make it possible for readers to estimate for themselves the amount of inflationary bias. (Italics mine).[10]

It would seem appropriate, therefore, to investigate areas where supplementary adjusted data might supply useful and relevant information for stockholder decision-making.

Appraisal of Management Performance

While it is the chief function of investors to allocate resources among the managements of different firms and industries, the prime duty of management is to maintain the integrity of the capital entrusted to them and to use it productively. The degree to which management carries out this dual responsibility is, according to security analysts, the most important factor to be evaluated by equity investors.

With adjusted accounting data, investors could better judge the quality of management. Through a restatement of the accounting data in common dollars, investors could readily see to what extent the real investment in the past has been preserved intact. Management should be charged with more responsibility than simply keeping the same dollar amount of investment. The dollar is a fluctuating, unreliable measuring unit; the real investment is the purchasing power committed. Before an investor commits additional purchasing power to an enterprise, he is entitled to information about the treatment accorded

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[10]Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes, p. 88.

past investment--his own or that of other investors.

In appraising management's performance in using the capital invested productively, the investor needs more than unadjusted dollar figures also. By distinguishing between the profits arising from management's use of the assets and those illusory profits caused by measuring costs and revenues by different size dollars, adjusted statements prevent the showing of capital consumption as income. It seems inconceivable that investors can make sound decisions when recovery of capital is disguised as income, when management is credited with pseudo-profits arising from fluctuations in the price-level, or when measures of the return generated by the employment of the assets are irrelevant as guides to the future. Only when such distortions are eliminated by the use of adjusted data would one expect investors to be able to accurately assess the relative merits of managements of the different firms among which the financial resources are to be allocated.

Financial Factors Influencing Investor Judgments

In order to reach conclusions regarding management and the over-all quality of a firm or industry, investors must rely, for the most part, on tangible considerations. Therefore, it is proposed at this time to examine some of these financial factors to determine what changes in them might be revealed under common-dollar accounting. Two eminent security analysts have suggested five areas which they consider to be the chief influences reflecting on the views of common-stock investors: (1) dividends, (2) profitability, (3) stability, (4) growth, and (5) financial strength.[11]

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[11]Graham and Dodd, op. cit., p. 204.

Dividends.--One of the most important investor considerations, particularly for public utility stocks, is the amount of earnings that are distributed in cash to the stockholders. The dividend rate and record measure the current dollar return to the investor. Graham and Dodd have suggested that the ideal dividend policy would be one that is stable, displays a steady upward trend over the years, and distributes, on the average, a generous portion of the earnings.[12]

Unfortunately, the investor judges these qualities using an unadjusted dollar. A stable dividend rate in dollar amount becomes a fluctuating dividend rate in real terms, dependent on changes in the purchasing power of the dollar. Certainly, if stability of dividends is of concern to investors, then, stability over the years must be measured meaningfully--in terms of what the dividend return will purchase.

In a similar manner, adjusted data would disclose false trends in the dividend rate caused simply by the shrinking dollar. Although a steadily rising dividend rate may serve as a measure of the success of an enterprise, the measure loses much of its meaning if, in fact, all that is being accomplished is the maintenance of the original dividend rate in real terms. In light of the secular inflation of the last two decades, common-dollar accounting statements would probably disclose not a rising dividend rate but, rather, a horizontal or, perhaps, even a declining pattern.

The third desirable feature of a good dividend policy mentioned above is the distribution of a large percentage of the earnings as cash dividends. Such a feature can be appraised by comparing payout ratios. As indicated in the previous chapter, however, a radical change appears

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[12]Ibid., p. 596.

in the payout ratios when they are computed in common dollars. High payout ratios may be viewed favorably in many cases by investors; however, the equity holder should be aware that in real terms the dividends paid sometimes represent a return of capital and not a distribution of assets earned. One might wonder how many investors would countenance payout ratios of over 100% for any considerable period of time. Moreover, as was suggested earlier, the investor cannot wisely administer his resources if the return of investment masquerades as dividend income.

Profitability.--The most widely used standard for determining the financial productivity of the capital invested in a business is the rate of return concept. The rate of return--expressed as the percentage earned on invested capital--can be computed both for the total capital employed and for the equity capital involved. The first ratio should serve as an indicator of management's ability to set the total assets to work productively; the latter, as an indicator of the benefits accruing to the common stock investment from this productive use of assets and from financial leverage.

The rate of return can be utilized in two different capacities--as a yardstick to evaluate past management performance and as an indication of earning power. For each of these purposes, the investor needs reliable data. As Joel Dean has stated, "Return on capital is the most important form of profit standard from the owners' viewpoint."[13] As an indication of earning power, the rate of return concept assumes, perhaps, even greater importance. The investor looks to the future using past and present accounting statements as a basis upon which to

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[13]Joel Dean, Managerial Economics, p. 34.

make his projections. This function was recognized early in the development of improved accounting reports:

> The committee . . . feels that the direction of the principal efforts of the exchange to improve the accounting reports furnished by corporations to their stockholders should be toward making the income account more and more valuable as an indication of earning capacity.[14]

The rate of return ratio is, itself, the product of two component ratios as shown below.

$$\frac{\text{Earnings}}{\text{Investment}} = \frac{\text{Earnings}}{\text{Revenues}} \times \frac{\text{Revenues}}{\text{Investment}}$$

Rate of Return	Profit Margin	Turnover

Calculating the rate of return for any given year in unadjusted dollars distorts each of the ratios and, thus, the rate of return. For example, reported earnings during an inflationary period will be overstated to the extent that expenses representing the consumption of assets purchased in prior periods are recorded in historic dollars and not in the same dollars as the revenues or other expenses of the period. Consequently, the overstated earnings divided by revenues gives an overstated profit margin.

The turnover ratio reflects the dollars of revenue produced by each dollar of investment. It would appear essential for accurate results that the dollars of revenue be of the same quality as the dollars of investment. Such is not the case, however, when unadjusted data are used; for a dollar of investment usually represents an older dollar of greater purchasing power. Thus, dividing revenues by an understated investment yields an overstated turnover ratio also.

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[14] From correspondence between the American Institute of Accountants and the New York Stock Exchange in 1932-1934 entitled Audit of Corporate Accounts quoted by Broad, op. cit., p. 383.

The final result of multiplying these two overstated ratios is a grossly overstated rate of return. As a general rule, during periods of inflation overstated earnings are taken as a percentage of an understated capital investment in terms of the purchasing power represented by each. Such an overstated rate of return serves neither as a good criterion of performance nor as a predictive factor for the future. If used as a performance standard, the unadjusted rate of return credits management with earnings due simply to a rising price level and understates the actual purchasing power (real investment) with which management could work. As a guide to future profitability, the unadjusted rate of return falls short also. Overstated current earnings as a percentage of the historic cost of the investment bear no relationship to what one might expect could be earned on current investment.

In conclusion, it would seem that during periods of inflation rates of return computed from heterogeneous-dollar accounting figures make investments appear to be more profitable than they actually are. Because individual companies are affected differently by changing price levels, it is not sufficient just to discount subjectively the inflationary bias and continue to use the unadjusted data for making comparisons. The degree of distortion among different companies varies as the nature of their investment patterns and cost structures vary. One cannot dismiss the effects of a rising price level on rates of return with the assumption that all firms are affected equally. The only sound alternative is to use common-dollar accounting statements in making the rate of return calculations.

Stability.--The third factor investors consider important is the stability of revenues and income over time. The same general considerations discussed earlier concerning dividend stability apply here

also. What is the more meaningful concept of stability--stability of dollar earnings or stability of earnings having approximately the same command over goods and services in the market place? Reason would designate the latter as the more important consideration. Stable dollar earnings signify little if the dollar continues to deteriorate in purchasing power. Only adjusted accounting statements expressed in a common dollar provide the necessary information for analyzing the purchasing-power stability of earnings throughout a period of time.

Growth.--On an equal plane with considerations of stability are those of growth. Of particular interest to investors are the growth trends in sales, profits, earnings-per-share, and assets. If these items appearing on existing financial statements are compared over any substantial length of time, the resulting trends may be inaccurate because changes in the size of the measuring unit have not been recognized.

For example, whereas unadjusted sales compared over a ten or twenty-year period might show a respectable upward trend, the same data expressed in a common dollar might indicate a level or even declining trend. In other words, instead of increasing the real revenues over the period, the company has barely managed to raise prices sufficiently and/or sell enough more goods to maintain the same inflow of purchasing power as in previous years.

Comparisons of net earnings over a period of years are even more misleading. In this case not only are the revenues and current expenses for each period expressed in a different dollar, but also the cost of the fixed assets used up in each period are stated in the dollars of the year when the assets were first purchased. Unfortunately, with unadjusted data, "a dollar is a dollar is a dollar." Only with accounting

statements adjusted to a common dollar would comparisons of net income exhibit a trend in the significant earnings figure--that representing the increase in purchasing power (ability to command goods and services) added each year. The same applies to comparisons of earnings on a per share basis.

Financial strength.--This factor concerns primarily the debt policy being followed by a particular company. The amount of debt which is allowable in the investors' eyes will, of course, vary with the industry involved. Nevertheless, as the discussion of debt policy in Chapter III pointed out, adjusted data supply some valuable insights relevant to the optimum amount of debt and, hence, to the financial strength of the company.

The factors disclosed by price-level adjustments include the declining real burden of interest payments as prices rise, the increased real amount of stock equity, and the lower earnings coverage of the interest charges. Just as these factors may affect managements' decisions regarding debt policy, they can exert a similar influence on the investors' concept of the point at which increased debt financing impairs the financial strength of the company.

In summarizing the effect of accounting data adjusted for price-level changes on investors' evaluation of these financial factors, one is forced to conclude that it would be significant. In each of the areas, price-level adjustments would reveal information relevant to the issue. Trends and ratios appear more logical and useful when an unchanging dollar is used as the yardstick.

Summary

For fixed-income security investors, the main orientation re-

volves around monetary earnings rather than real earnings. This is particularly true for the large institutional investors who have either shifted a substantial portion of the purchasing-power risk to policyholders and depositors or are legally required to invest primarily in this type of security. Unable to achieve any lasting protection against inflation through higher interest rates, their attention may have turned toward modifications of the security contract provisions. Adjusted accounting data would influence their selection of securities, therefore, only to the extent that a lower real earnings coverage of interest charges and/or inadequate depreciation provisions may modify the emphasis on monetary earnings.

With common stockholders, however, one found that accounting statements adjusted for price-level changes would exert a telling influence. In judging the over-all capabilities of management and, in particular, in the evaluation of five general financial areas examined, it was discovered that common-dollar accounting may reveal significant changes in the trends and ratios used.

CHAPTER V

INFLUENCE OF COMMON-DOLLAR ACCOUNTING IN THE AREA OF GOVERNMENTAL DECISIONS

Regulatory Policy

A theme running throughout the previous chapters in this study has been that public utilities operate under a relatively unique system of control. While all businesses are subjected to sundry legal requirements and restrictions, much more and much closer regulation exists in the public utility field. The main area of control, in contrast to other businesses, is over the prices charged to consumers--rate regulation.

General Nature of Public Utilities

The differentiation in degree of control between businesses labeled public utilities and other businesses gives rise to the question, "What factors tend to appear in public utilities which cause them to be singled out for special regulatory treatment?" Among the items that have been mentioned in court decisions over the years, two seem to stand out--essentiality of service and tendency toward natural monopoly.[1] The latter factor has been accorded much greater importance

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[1] The tendency toward monopoly springs from natural limitations as to source of supply (scarcity of advantageous sites, avoidance of uneconomic duplication of local distribution facilities which control the market) and from relatively large-scale operation due to the decreasing cost nature of the industry. See Herbert B. Dorau, Materials for the Study of Public Utility Economics (New York: The MacMillan Company, 1930), pp. 188-189.

than the former; the economic basis for regulation rests on this tendency toward monopoly.

Because competition tends to be less prevalent in the utility field and rates are regulated, some observers have concluded that utility investment has no risk associated with it. Such, however, does not appear to be the case. The investor in a utility is basically like any other investor in a private business. Although reasonable rates are guaranteed until changed through regulation, the volume of service used, total revenues, and net earnings are not. Earnings under regulation refer to allowable or permissable earnings rather than to any guaranteed earnings. The utility investor, like investors in other industries, faces the risk of a decline in demand for the product. Moreover, with controlled rates two additional risks have to be incurred--a regulatory risk (the regulatory agency will not take into consideration all the proper economic factors bearing on price-setting) and a lag risk (the regulatory agency will adjust rates to changing economic conditions only after a long delay).

Utility investments are not shielded from competition as much as one might be led to believe. While it is granted that direct competition by another supplier of the same service--for example, another electric company--is usually absent, other competitive pressures still exist. For instance, there is competition between substitutes (gas and electricity), competition with alternative sources of supply (industrial generating units or government), and competition with all other products for the consumer's dollar. Moreover, in the market for productive factors or for financial capital, utilities enjoy no special benefits, but, rather, must compete there with all other non-utility

companies.

Rate Regulation

The rationale for governmental intervention in utility price-setting traditionally has found support in one of two theories. The first reasons that the providing of utility services is a proper function of the state. The means that government adopts to supply these essential services is to compensate private individuals for actually carrying out the job. Under this line of reasoning, the utility investors and management are, in essence, treated as paid employees of the state, performing a state function; and the state controls the price of the service.

In light of the risks faced by utility investors and the lack of any guaranteed earnings, the above explanation does not appear to be sound. Most utilities developed like other businesses; investors committed assets to an enterprise in hopes of earning a return on those assets by supplying a needed service. The second theory begins from this premise that utilities are private industries which need governmental rate regulation to act as a substitute for direct competitive conditions which are lacking. This concept, founded in common law, was affirmed by the Committee on Progress in Public Utility Regulation of the National Association of Railroad and Utility Commissioners. Their 1941 report stated in part, "The purpose of the regulatory procedure in the protection which it is designed to afford the consumer is to stimulate and substitute for the effects of competition and give the consumer the benefits which he would derive from a system of competition."[2]

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[2]Quoted by Maurice R. Scharff, "Valuation and Depreciation of Public Utility Property," Proceedings of the American Society of Civil Engineers, LXXIV (June, 1948), p. 831.

Steps in rate-making process.--In trying to approximate the effects of competition in setting the rate level, regulatory agencies have adopted as a general formula a cost-of-service principle. In other words, the utilities should be allowed to charge rates which will provide total revenues to cover all costs of supplying the particular service. The primary items in the cost of service include: (1) operating costs, (2) taxes (including income taxes), (3) depreciation, and (4) return on investment.

Under rate regulation, therefore, the methods used in computing and recognizing costs determine selling prices to a large extent. Included in total cost, as in economic theory, is a normal return to the suppliers of capital. Most regulatory problems arise in areas three and four--depreciation and return on investment. Unless obviously unreasonable or fictional, operating costs and taxes have historically been accepted as recorded by utility companies.[3]

Depreciation.--As pointed out in Chapter II in the discussion of the accounting concept of income, depreciation often has been looked upon in a number of ways. Similarly, scattered throughout the history of utility regulation are numerous examples of misconceptions of depreciation. For example, Professor Perry Mason lists court cases supporting various concepts ranging from depreciation as a method of financing replacements to depreciation as a provision for deferred maintenance.[4]

In the past fifteen years, however, the regulatory agencies,

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[3]In recent years, alternative methods of recognizing federal income tax charges have received increasing scrutiny by regulatory commissions.

[4]Perry Mason, Principles of Public Utility Depreciation (Chicago: American Accounting Association, 1937), pp. 104-110.

courts, and utilities, themselves, have come to view depreciation for what it is--an allocation of cost and not a valuation procedure. In 1944 the National Association of Railroad and Utility Commissioners Depreciation Committee revised their definition to include "expiration or consumption . . . of the service life, capacity or utility of property . . . ."[5] A special joint committee on depreciation of the Edison Electric Institute and the American Gas Association recently defined depreciation as "the apportionment to accounting periods of the recorded cost of depreciable plant, less expected net salvage and other recoveries, by regular and systematic charges during the expected useful life of such plant."[6]

Return on investment.--Over the long run, the compensation of the capital providers is premised on a normal-profit criterion. In keeping with the attempt to simulate competitive conditions, regulatory agencies reason that utilities should be allowed to earn only the normal profits (pure interest plus compensation for risk and uncertainty) which would exist in a competitive situation.

The return on capital invested (normal profit) has traditionally been computed by applying a rate of return (the cost per unit of capital) to a rate base (the number of units of capital). To implement this procedure necessitates defining the rate base with the attendant problems of valuing the items in the rate base, determining a fair rate of return, and adjusting the prices charged to consumers to bring the actual rate of return in line with the fair rate. Each of these two

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[5]Quoted in Luther R. Nash, Anatomy of Depreciation (Washington, D. C.: Public Utilities Reports, Inc., 1947), p. 17.

[6]"The Proposed New NARUC Controls for Depreciation Accounting," Edison Electric Institute Bulletin, XIX (December, 1951), p. 401.

important components will be studied more closely later in this chapter.

Extent and History of Regulation

The regulatory field is dominated, except in a few instances, by state and federal agencies. These agencies, for the most part, are independent commissions charged with the responsibility of regulating various aspects of utility operations. State commissions to control railroads were the first to appear on the scene in the latter part of the nineteenth century. State control was extended to cover local utilities in the early 1900's. Due to the expansion of many utilities into interstate commerce and due to ineffective regulation on the part of some state commissions, a need arose for some kind of federal control to supplement state regulation.

The Federal Power Act of 1935 extended the authority of the Federal Power Commission (FPC), which had been established to control waterways in 1920, to control wholesale rates, financial transactions, and accounting practices of electric companies operating in interstate commerce. Moreover, the FPC can prescribe accounting systems for electric utilities in states having no commissions or where the state commission does not prescribe systems of accounting. In the same year the Securities and Exchange Commission obtained control over the issuance of securities and other financial transactions by gas and electric holding companies and their subsidiaries under the provisions of the Public Utilities Holding Company Act. Around the same period of time the interstate transmission of gas was placed under the control of the Federal Power Commission; the Interstate Commerce Commission (ICC), created in 1887 to regulate the nation's railroads, was given extended powers; and jurisdiction over the interstate communications industry was transferred

from the ICC, to which it had been assigned in 1910, to the newly created Federal Communications Commission.

It must be remembered, however, that the purpose of federal legislation was to supplement and not to supersede state control. The regulation of intrastate utilities and the setting of local rates remained among the prerogatives of the state commissions. In all but six of the states and territories, commissions exist to regulate gas and electric utility rates.[7] Control over rates often carries with it the power to suspend proposed rate increases, initiate rate investigations, and prescribe temporary rates.

In addition to regulating matters directly associated with rates, state commissions are empowered to prescribe systems of accounts including rules for the maintenance of continuing property records, for units of property to be used in the accounts, and for depreciation computations. A majority of states have ordered the use of either the system of accounts advocated by the Federal Power Commission or a similar system promulgated by the National Association of Railroad and Utility Commissioners.[8] Twenty-eight states have prescribed a set depreciation method.[9] To complete the state regulatory picture add numerous miscellaneous controls over service, security transactions, mergers, and the sale of assets.

Regulation has been an evolutionary process beginning with virtually no control and finally developing into the present system

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[7] U. S., Federal Power Commission, State Commission Jurisdiction and Regulation of Electric and Gas Utilities, p. 2.

[8] Ibid., p. 5.

[9] Ibid., p. 11.

of authority centered in independent administrative agencies, particularly federal ones. The history of public utility regulation can be divided into two basic periods. In the first period running from the late nineteenth century to about 1933, the right of state commissions to regulate utilities was established. Moreover, this period saw the judicial branch of the government taking an active role in regulatory procedures.

In a series of cases in the late 1800's, the courts laid down the general rule that businesses "clothed with a public interest" were subject to regulation by state commissions. Perhaps the most important case in this group was Munn v. Illinois, in which the Supreme Court stated,

> Looking, then, to the common law, . . . we find that when private property is "affected with a public interest, it ceases to be juris privati only." . . . Property does become clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large.[10]

The years that followed saw an extension of this principle to other industries based primarily on the existence of monopoly conditions with occasional reference to the essentiality of the service.

Accompanying the above was a trend away from rates fixed by contract or statute to rates fixed by state commissions. Moreover, the courts exercised broad powers of judicial review over commission decisions during this period, establishing themselves as the final arbiters of what constituted proper rates. The guiding rule for the whole period was established in 1898 in Smyth v. Ames. Here the Supreme Court set the standards of a fair return on the fair value of property used by the public utilities and reasonable rates to the consumers.

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[10] 94 U. S. 113, 125-126 (1877).

> What the company is entitled to ask for is a fair return upon the value of that which it employs for the public convenience; and on the other hand, what the public is entitled to demand is that no more be exacted from it . . . than the services rendered are reasonably worth.[11]

Regulatory court decisions from 1898 to 1933 contained rulings as to the reasonableness of various commission interpretations of fair value.

Beginning in 1933 the second basic cycle of utility regulation began. In this period one could see the courts relying more and more on the authority of the commissions. This was particularly true with the addition of more federal commissions which had the resources necessary to conduct thorough investigations. The tenacity of the Federal Power Commission in advocating original cost valuation and changes in the make-up of the court led to a movement to free the commissions from any set formula for rate determination.

The turning point, in retrospect, seems to have been the Los Angeles Gas case in 1933, where the Supreme Court stated that its main concern was whether the final rates were confiscatory and not necessarily with the particular methods used to arrive at the rates.[12] This same attitude of non-interference with procedural details was displayed again in two important cases in the early 1940's. In the Natural Gas Pipeline case, decided in 1942, the court stated that commissions were not bound to any formula or combination of formulas so long as the final rates were within the zone of reasonableness.[13]

Two years later in the famous Hope Natural Gas case, the court

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[11] 169 U. S. 468 (1898).

[12] Los Angeles Gas and Electric Corporation v. Railroad Commission of California, 289 U. S. 287 (1933).

[13] Federal Power Commission v. Natural Gas Pipeline Company of America, 315 U. S. 575 (1942).

in essence eliminated from its review commission methodology, the majority being willing to rely on the expert judgment of the commission, This decision firmly established the concept of the end result in its statement, "If the total effect of the rate order cannot be said to be unjust and unreasonable, judicial inquiry . . . is at an end."[14]

From this point until the present, federal commissions and some state commissions, have been able to use various methods to determine the rate base and rate of return without judicial interference as long as the final rates established (end result) were not confiscatory or unreasonable.

The Rate Base

Throughout the history of public utility regulation, the phrase "value of property used" has been repeatedly injected into the literature on rate setting. At the outset one should realize that the term "value" has no meaning in establishing a base for measuring public utility earnings. Earnings determine value and it is circular reasoning to try to determine "value" in order to determine earnings which in turn determine value. What should actually be considered is a measure of the property or investment devoted to public service to serve as a rate base to which the allowable rate of return on investment can be applied. In no way could it purport to represent the "value" of the utility property.

Among the many possible measures of utility investment mentioned in regulatory decisions, two stand out most frequently--the original cost of the property and the reproduction cost of the property.

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[14] Federal Power Commission v. Hope Natural Gas Company, 320 U. S. 596, 602 (1944).

The greater portion of regulatory history has been concerned with attacking, defending, and embellishing these two concepts.

Original cost.--A rate base premised on the original-cost concept takes as the measure of utility investment the original cost of assets presently used and useful in supplying utility services. Each asset invested or purchased is valued at its original dollar cost despite changes in the purchasing power of the dollar. Under this method (alternatively called historic cost or prudent investment), the accounting records assume great importance in establishing the amount of the rate base. Herein probably lies the chief advantage of original cost; with records kept in accordance with sound accounting principles, the rate base can be easily and objectively determined.

The prime disadvantage of an original-cost rate base is the implicit assumption that the dollar does not change in value. In a period of a rising price level the inflated dollars representing the net revenues are viewed as being of equal quality to the dollars representing the investment. Consequently, there is a restriction on real earnings during an inflationary period because the real rate of return measured in terms of constant purchasing power actually declines.

As mentioned in Chapter III, adherence to original cost during inflationary periods may result in an underpricing of utility services in real terms. If return on investment is a valid cost of service and prices are based on cost of service, then restrictions on the real rate of return caused by neglecting the fact that the value of the dollar has changed could lead to a real decline in utility prices relative to the prices of other goods and services produced in the economy. To this extent, original cost falls short in helping rate regulation fulfill

its purpose of substituting for competition. One observer summarized this difficulty as follows:

> Prices in the competitive field of our economy are not tied to original cost in any sense of the imagination. And if we apply our reasoning that regulation is a substitute for competition, then original cost as a determinant of price is quite out of step with the rest of our economy and should not be used in the utility industry.[15]

Reproduction cost.--In attempting to correct the above defect in original cost and to achieve a better measure of the "value" of utility investment, utilities, regulatory agencies, and the courts looked to the reproduction cost of the utility assets devoted to public use. Under this method, the rate base is the cost of the property used valued at current replacement prices. Immediately the question arises, "What reproduction cost is being considered--reproduction cost of the service or reproduction cost of the present plant assets?"

Using the former concept, reproduction cost is defined as the estimated present cost of the most efficient plant that could now be constructed for performing the service. It has the advantage of providing utility investors and managements with an incentive for efficient operation by penalizing them through a lower rate base for obsolescent, inadequate, or improperly constructed assets. Moreover, reproduction cost of service approximates the situation under normal unrestricted competition; for competition comes from those capable of replacing the service offered and not from those reproducing the exact property. Thus, only the cost of reproducing the service provides a system which approaches that of the most efficient competitor. If the reproduction cost of existing facilities is used, the utility is relieved of all losses

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[15]John F. Childs, "Cannons of Investment: A Reappraisal: Discussion," The Journal of Finance, XIV (May, 1959), p. 263.

due to improvements in technology and it benefits more quickly from increases in the cost of equipment than it would under normal competition.

Despite this advantage reproduction cost of service never achieved wide-spread acceptance in utility valuation. Primarily, this lack of acceptance stemmed from the administrative difficulties of agreeing on what were the most efficient methods and facilities to supply the service. In most cases there were too many alternative ways from which to choose. In addition the Supreme Court, obsessed with the search for "value of property used and useful," usually held that reproduction cost meant revaluation of identical property and not reproduction of service.[16]

Of course the reproduction cost of identical facilities may not bear much relationship to the conditions which would exist under competition. Rather, the real rationale for this method lies solely in its attempt to compensate for price changes.

> Considered abstractly, apart from non-administrability, reproduction cost less depreciation would be a reasonable rate base in providing financial adjustment to shifting price levels, upward or downward, after plant investments have been made. If it could be promptly and definitely established without prolonged investigation and conflicts of interest, and if it were also adjusted to company financial structures, it might be a more satisfactory rate base than original cost less depreciation or designated prudent investment. During rising prices its excess over the prudent investment would merely compensate for the decline in the purchasing power of money. Conversely, with falling prices it would reflect correspondingly the increase in the value of money. With shifting prices upward or downward, it would furnish automatic adjustments in valuations to changing monetary values, except as individual reproduction-cost elements might differ materially from price-level changes (Italics mine).[17]

The underlined phrases in the above quotation bring to light

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[16] McCardle v. Indianapolis Water Company, 272 U. S. 400 (1926).

[17] John Bauer, Transforming Public Utility Regulation (New York: Harper and Brothers Publishers, c. 1950), p. 132.

the major disadvantages of reproduction cost as used in past regulatory decisions. Administratively, this method of rate-base valuation has been slow and expensive. To reach a final decision on reproduction cost often necessitated huge outlays of funds for time-consuming appraisals and long drawn-out litigation.

One important reason for the above was that no established methods of valuation acceptable to all parties concerned existed. For example, differences of opinion arose over whether the assets were to be valued in their present or their original condition; whether current methods of construction or the original methods were to be considered; whether the simulated reconstruction at present prices would be piecemeal or integral; and whether present prices were to be taken at a moment in time, averaged over a period of time, or trended.

These and other differences resulted in widely varying and, in many cases, highly subjective estimates. In the New York Telephone case of 1926, for instance, the variations of estimated fair value were as follows:

Majority of Commission	$ 366,915,493
Statutory Court	347,207,925
Minority of Commission	405,502,993
Master's Report	518,109,584
Whittemore Appraisal	528,753,738
Stone and Webster Appraisal	615,000,000[18]

For all the cases reported from 1928-1933 inclusive, the average varia-

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[18]William E. Mosher and Finla G. Crawford, Public Utility Regulation (New York: Harper and Brothers Publishers, 1933), p. 200. The authors also present other similar cases of large differences in rate-base determination.

tion between the company and commission estimate of reproduction cost was 52%.[19]

As a method of adjusting the rate base for changes in the value of money, reproduction cost begins from a false premise--namely, that the specific prices of the elements composing utility assets vary directly with changes in the general price level. Such is rarely the case, however. Specific price changes may fluctuate independently of the general price level. The value of money means the purchasing power of the money which changes as the general price level varies.

History of rate-base decisions.--Just as the general tenor of utility regulation can be traced through a sequence of court decisions, the changing attitudes on the valuation of the rate base can be studied the same way. The Supreme Court decisions on valuation have covered a wide range of opinion; unfortunately, clear reasoning and consistent application of rulings often have been lacking. One authority on utility valuation summarized his criticisms with, "Yet had the Court deliberately set out to defeat the whole purpose of regulation and to make public ownership inevitable, it could hardly have pursued this objective more effectively than by its rulings and dicta on valuation."[20]

The problems of rate-base determination came into prominence at the turn of the century. From this time until around 1914 the courts refused to lay down any set formula but stressed the dictum of fair value promulgated in Smyth v. Ames. Justice Harlan writing the opinion stated that the ascertainment of fair value should consider the original cost

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[19]Emerson P. Schmidt, The Economics of Public Utilities (Ann Arbor, Michigan: By the author, 1940), pp. 54-55.

[20]James C. Bonbright, The Valuation of Property (New York: McGraw-Hill Book Company, Inc., 1937), p. 1154.

of the property, the amount expended in improvements, the amount and market value of its securities, and the present cost of construction. Each of these matters was "to be given such weight as may be just and right in each case."[21] The decisions following this rule consisted of various mystical combinations of these elements to arrive at fair value.[22]

The Minnesota Rate Cases of 1913 began a shift of emphasis to reproduction cost less depreciation as the best measure of fair value.[23] Although the Court disavowed any formula, its decision was, nevertheless, reproduction cost less depreciation. Beginning with the inflationary price change following World War I and continuing through the early 1930's, reproduction cost became the accepted definition of fair value.[24] In 1923 not only were present prices considered important, but future price trends as well.[25] The peak of this reproduction-cost period was probably reached in the McCardle v. Indianapolis Water Company case in 1926.[26] Here the Court ruled that the use of spot reproduction costs on the date of inquiry was a fair method of valuation.

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[21]169 U. S. 468 (1898).

[22]In Knoxville v. Knoxville Water Company, 212 U. S. 1 (1909), the principle of deducting accrued depreciation in arriving at fair value was established. During the same year the Supreme Court held in Wilcox v. Consolidated Gas Company, 212 U. S. 19 (1909), that fair value generally includes appreciation. It stated, ". . . value . . . is to be determined as of the time when the inquiry is made regarding the rates. If the property . . . has increased in value . . ., the company is entitled to the benefit of such increase."

[23]230 U. S. 352 (1913).

[24]See, for example, the following cases: Consolidated Gas Company v. Newton, 267 Fed. 231 (1920); Newton v. Consolidated Gas Company, 258 U. S. 165 (1922); Galveston Electric Company v. Galveston, 258 U. S. 388 (1922), and Bluefield Water Works and Improvement Company v. Public Service Commission, 262 U. S. 679 (1923).

[25]Southwestern Bell Telephone Company v. Public Service Commission, 262 U. S. 276 (1923).

[26]272 U. S. 400 (1926).

Throughout this whole period a minority of the Court were expressing vigorous dissents. Led by Justice Brandeis, a strong advocate of the prudent investment concept, this group wrote well-reasoned, lengthy dissents to the reproduction cost theory. For the most part they based their case on the ground that only original cost was administratively feasible and represented the true investment by the holders of utility securities. However, it was to be another decade before their voices were to be accepted by the majority of the Court.

Rate-base controversy subsided somewhat after the McCardle v. Indianapolis Water Company case. During the period from 1927 to 1933 only two major cases were decided--both in favor of reproduction cost.[27] With the reforms of the 1930's, however, came a change in thinking about regulation and valuation. In 1933 there began a trend back to original-cost valuation. The price level had declined after 1929 so that the inflation arguments for reproduction cost disappeared. Moreover, the administrative situation for the previous twenty years had been far from desirable. Add powerful federal regulatory commissions capable of enlightened regulation coupled with a gradual withdrawal of the Courts from procedural matters and one can understand the turn toward the forceful arguments of Justices Brandeis, Holmes, and Stone.

As mentioned previously the turning point was the Los Angeles Gas and Electric case, where the results were deemed more important than the methods used.[28] In two cases in 1934 the Court concerned itself only

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[27]In St. Louis and O'Fallon Railway Company v. United States, 279 U. S. 461 (1929), the ICC was overruled by the Court because the former had failed to consider reproduction cost in determining fair value. A year later in United Railway and Electric v. West, 280 U. S. 234 (1930), the Court upheld reproduction cost again.

[28]Los Angeles Gas and Electric Corporation v. Railroad Commission of California, 289 U. S. 287 (1933).

with questions of confiscation.[29] The ruling in both these cases was that fair value findings based on reproduction cost were at "war with realities" when related to the actual financial experience of the companies.

Following in the direction indicated by these earlier cases, the Court explicitly recognized original cost in Pacific Gas and Electric Company v. Railroad Commission of California.[30] In this case in 1938 the California Commission which had made its valuation decision using only historic cost as evidence of fair value was upheld. From this case it was only a short step to the Natural Gas Pipeline case and the Hope Natural Gas case mentioned earlier.[31] In the former case fair value was never mentioned. While the majority did not definitely renounce fair value in favor of original cost, a concurring minority strongly advocated prudent investment. In the Hope case judicial review was restricted even more, and the federal commissions were left to use whatever methods they deemed were best.

Present commission attitudes.--Since present regulation is almost entirely an administrative rather than a judicial function, one ought to take a brief glance at the current views of commissions on the valuation of the rate base. On the federal level both the Federal Power Commission and the Federal Communications Commission look to original cost for their rate base. The FPC defines original cost as the cost at

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[29] Lindheimer v. Illinois Bell Telephone Company, 292 U. S. 151 (1934), and Dayton Power and Light Company v. Public Utilities Commission, 292 U. S. 290 (1934).

[30] 302 U. S. 388 (1938).

[31] Federal Power Commission v. Natural Gas Pipeline Company of America, 315 U. S. 575 (1942), and Federal Power Commission v. Hope Natural Gas Company, 320 U. S. 591 (1944).

the time the property was first devoted to public use; the FCC, on the other hand, defines it as cost at the time the property was first devoted to telephone use. In any case, the excess of actual cost over original cost must be shown in a separate account which may or may not be treated as part of the rate base. In brief then, it would seem that federal commissions strongly advocate quite rigid interpretations of original cost.

At the state level the situation is rather mixed. Only one state, Ohio, clearly specifies the use of cost of reproduction. Nevertheless, fair value is given consideration in about a third of the other states. Some states have vacillated between the two methods, and no distinct movement toward either one can be perceived at present.

Rate of Return

Once the amount of the rate base has been established, the next problem facing the regulatory commission in determining the total amount a utility may be given the opportunity to earn is fixing a rate of return. This percentage measures the rate of earnings on the investment which the commission or court feels will compensate the investors for the use of their money and for the risks undertaken in making the investment. Applying it to the rate base gives the total amount of dollars deemed appropriate as payment to the suppliers of capital.

The factors influencing the rate of return throughout the years have been numerous.[32] However, unlike the determination of the rate base, no predominant viewpoints emerged until recent years. Nevertheless, the many factors can be grouped around four broad, closely related ideas

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[32]For a discussion of ideas and court cases concerning these factors see Ellsworth Nichols, Ruling Principles of Utility Regulation: Rate of Return (Washington, D. C.: Public Utilities Reports, Inc., 1955).

--comparable earnings, risk, efficiency of operations, and cost of capital.

Following the first of these general ideas, the courts would attempt to set a rate which would be earned in comparable unregulated industries. The argument advanced was that if regulation was to act as a substitute for competition, then, the best rate of return was that which existed in similar kinds of competitive industries. The difficulty arose, of course, in selecting unregulated, competitive industries which were analogous to the public utilities.

For the regulatory agencies to attempt a solution to this difficulty often required an analysis of risk--the second broad idea mentioned above. Here it was necessary to evaluate the effects of indirect competition and economic conditions surrounding the firm, the particular type of utility, and the economy as a whole. Consequently, the results, for the most part, were highly subjective.

Another set of factors mentioned frequently in rate-of-return decisions revolved around managerial and operational efficiency, both historically and at the time the rate inquiry was being made. Under this head fell such items as operating ratios, past earnings or losses, quality of service, development of facilities, etc. Here again, however, the various evaluations involved were not founded on any set standards; therefore, the end results often suffered from the whimsy and imagination of those making the decision.

One important attempt made to achieve objectivity in the rate of return has used a weighted average of the earnings rates applicable to each of the various types of capital suppliers--bondholders, preferred stockholders, and common stockholders. This approach, called the cost-

of-capital concept, has prevailed through the years and particularly in recent years has emerged as the dominant theme of discussions and decisions on the rate of return. Cost of capital has been interpreted in two ways. Under one version, cost of capital has meant the weighted historic rate actually paid on the securities of the capital structure. With debt securities, this would be a weighted average of the actual interest rates paid on each bond issue outstanding; with equity securities, it would probably be a weighted average of the earnings-price ratios existing at the time of each stock issue.

Capital-attraction cost.--The historic cost-of-capital concept, however, has gradually given way to one that could be termed an opportunity cost-of-capital or a capital-attraction-cost concept. With this theory the rate of return is based on the rates necessary to attract additional capital at the time in question. The prevailing interest rate for utility bonds and earnings-price ratios for utility common stocks is weighted by the existing or, perhaps, some optimum capital structure to determine the allowable rate of return.

The cost-of-capital doctrine has been particularly important in estimating the cost of equity capital. Not infrequently, a combination of the historic and the opportunity cost theories has been used--the former for determining the actual debt capital costs and the latter for the current equity capital costs. Since the price-earnings ratio (the reciprocal of the current earnings rate on the market price of the stock) is one of the most widely-used ratios normally calculated by intelligent investors, it has become the most important measure used by regulatory commissions in establishing the rate of return necessary to attract equity capital. Moreover, changes in the ratio are deemed to reflect changes in the overall attitude of the common stock investor.

Quite early in its investigations, the Federal Communications Commission stated its views on the price-earnings ratio.

> The ratio of dividends and earnings to market price of common stock may serve as an indication of the current cost of equity capital. . . . since the available earnings are the measure of the ability of the company to pay dividends either currently or in the future, the earnings-price ratio is regarded as more significant than the dividend-price ratio. . . it seems generally to be conceded that the long-run average earnings-price ratio more accurately than any other single factor, reflects the investor's composite evaluation of all fundamental influences affecting the corporations.[33]

Criticisms of capital-attraction-cost theory.--Basing the rate of return on the rate necessary to attract new capital into the enterprise is certainly not free from criticism. To the extent that the opportunity cost of capital represents the economic cost to society under a competitive situation, capital attraction may have an advantage. However, this advantage disappears, to a large extent, when an opportunity cost of capital is applied to an original-cost rate base. This inconsistency removes this variation of the formula for computing allowable earnings from the category of those attempting to simulate competitive conditions.

One rationalization frequently advanced for using the capital-attraction rate is that changes in the price level are reflected in the cost of capital and, thus, in the allowed rate of return. As indicated, however, by Professor Morton's study referred to in Chapter IV, this assumption is not valid. The current cost of capital makes no adjustment for past inflation or deflation. Consequently, "what the new investor is demanding in current dollars of return to make an investment

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[33]U. S., Federal Communications Commission, Telephone Investigation, Vol. XI: The Problem of the Rate of Return in Public Utility Regulation with Special Reference to the Long Lines Department of the American Telephone and Telegraph Company (Federal Communications Commission, 1938), pp. 75, 76.

in current dollars provides no evidence whatever of the fair rate to apply to the existing investment which may have been made when the dollar was worth much more."[34] The cost-of-new-money doctrine is fair only to new investors entering the business with cheaper dollars.

In addition to the above criticisms, the application of the ability-to-attract-new-capital concept may lead to inequities between companies. Usually any enterprise can obtain additional capital at some rate. Since the financial structure and the quality of management influence the ability to raise new capital, the financially unsound company or the poorly managed company has to pay a higher price for new capital. Translated into allowable rates of return, this means that this type of firm benefits from a larger rate of return vis-á-vis the financially sound, efficiently operated utility.

In an attempt to overcome these objections, the definition of "cost of capital" has been broadened to whatever price must be paid under competitive market conditions, allowing for alternative investment opportunities and differences in risk, by a public utility company under efficient management to raise new capital without impairing the integrity of the existing investments. Unfortunately, however, the above definition is the ideal and is seldom reached in practice. Moreover, following such a definition opens Pandora's box to all the difficulties attendant in determining "differences in risk," "efficient management," and "impairment of existing investment." For example, the interpretation given to the latter phrase rarely considers dilution of the purchasing power previously invested as an impairment.

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[34]Jackson Martindell, "Roadblocks to Sound Utility Regulation," Public Utilities Fortnightly, LII (November 19, 1953), p. 762.

Not only the concept of capital-attraction cost but also the methods used to implement it are subject to criticism. First, there is the problem whether the earnings-price ratio, the dividends-price ratio, or, perhaps, the earnings-net proceeds ratio (the relationship of earnings to price less financing costs) best measures the cost of equity capital. Using more than one of these simply transfers the problem to that of proper weighting. The commission computing the earnings-price ratio or its substitutes must also choose between average relationships over a period of time or spot relationships existing at the particular time.

With the former, it is difficult to keep other factors such as the payout ratio or the capital structure constant. The employment of spot relationships, on the other hand, assumes that an arithmetically calculated ratio based on short-term stock market fluctuations is a reliable measure of the prospective future rate of earnings. In either case, a valid objection can be raised against using market yields of securities which have already been sold and are, to some extent, seasoned as representations of the cost of additional capital and, thus, of what the fair rate of return should be.

Despite the aforementioned difficulties, the cost-of-capital approach seems to be increasing in importance. Nevertheless, the rate of return as a whole remains very flexible in both definition and use--one might even say nebulous in many respects. Frequently, it has been the catchall for various factors the commissions wished to take into consideration in determining the allowable return to the capital suppliers. As the reader will see in the next section, the rate of return has been increased in some states to try to compensate for rising prices--a prob-

lem solved more objectively and logically through adjustment of the rate base.

Common-Dollar Accounting and the Rate Base

The purpose of this section is to examine a proposal for using common-dollar accounting in determining the rate base for regulatory purposes. To serve as a prelude for this discussion and to help establish the need for some measures to counteract the effects of a rising price level, attention will be devoted first to a brief review of the impact of rising prices on utility earnings.

Utility Earnings During Inflationary Periods

To arrive at some conclusions about utility earnings necessitates some standard of comparison. Perhaps, one of the most interesting --particularly from the investor's viewpoint--is a comparison of utility investments with other types of investment during the same period. In this way one can gain a general impression of the results under regulation compared to the results in other investment areas where prices are free from strict control.

For example, a contrasting of the changes in purchasing power of the average reported earnings of the common stocks of industrial companies with the average earnings of the common stocks of utility companies discloses a wide disparity. The same is true of changes in the market price of the industrial stocks relative to the utility stocks. From 1940 to 1952 the purchasing power of the reported earnings of industrial common stocks increased 38% on the average and the purchasing power of the market price had increased 18%. In the same period the purchasing power of common stock earnings of utilities on the average declined 28% and

the purchasing power of the market price decreased 31%.[35]

Since 1952 when the rate of increase in the price level began to decline, utility earnings and market prices began to increase in terms of purchasing power. Nevertheless, their increase again did not even approximate the increase that took place in the reported earnings and market prices (expressed in terms of constant purchasing power) of industrial companies. As a consequence, utility investments for the period 1940-1957 as a whole lagged far behind other types of investments. For example, Table 7 shows the changes in the market values of various investments for this period.

In absolute terms, the earnings rate on public utility invest-

TABLE 7

PERCENTAGE CHANGE IN MARKET VALUES OF VARIOUS INVESTMENTS AND THE COST OF LIVING, 1940-1957[a]

Industrial Common Stocks	364%
Value of Farms	331
Cost of New Homes	204
Cost of Living	100
Electric Utility Common Stocks	94

[a]Harold H. Scoff, "The Impact of the Current Money Market on Electric Utilities," Public Utilities Fortnightly, LX (December 19, 1957), p. 997.

[35]Calculations are based on information relating to Moody's Common Stock Averages comprising one hundred twenty-five industrials and twenty-four utilities. See Moody's Public Utility Manual, 1958.

ments has declined also. Even as the purchasing power of the dollar has declined over 50% since 1940, the rate of return on net utility plant has decreased from 6.46% to 5.95% expressed in heterogenous dollars.[36] Expressed in real terms the decline in the rate of return would be more pronounced.

In view of the presence of such important factors--doubling of the price level, inability to adjust consumer rates, a declining rate of return in unadjusted dollars--all tending to curtail the real earnings and, thus, the activity of public utilities, one might raise the question why utilities are not presently in dire economic straits. One reason is that utilities have been able to attract additional capital by keeping dividend payout ratios very high in real terms. Two additional reasons, increased plant efficiency and changing commission attitudes, will be looked at now.

Increased plant efficiency.--Utilities, to some extent, have been able to halt the effects of the steady inflation following World War II by increasing output relative to input. One way in which this has been accomplished has been through a more efficient utilization of existing facilities. The load factor which relates the average load or use of facilities to the peak load is a standard measure of economy in the use of plant capacity already installed. Since utilities must have capacity to meet the peak demands for service, the greater the off-peak load on these facilities, the more efficient is the use of the existing plant investment. Through promotional rates and special adaptations of utility service to particular problems, the managements of

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[36]Harold H. Scoff, "The Impact of the Current Money Market on Electric Utilities," Public Utilities Fortnightly, LX (December 19, 1957), p. 996.

many public utilities have been able to increase their load factors considerably. Table 8 discloses the changes that have occurred in this factor in the electric utility industry.

TABLE 8

LOAD FACTORS FOR ELECTRIC UTILITIES
IN SELECTED YEARS

Year	Total Electric Utility Industry[a]	Federal Power Commission Class I Electrical Systems[b]
1946	56.6%	58.2
1949	58.8	60.3
1952	60.2	61.5
1955	61.4	63.0
1957	65.0	66.2

[a]"Industry Statistics," Electrical World.

[b]Edison Electric Institute, Statistical Bulletin (New York: Edison Electric Institute, 1952, 1957).

Another measure which shows the increase in plant efficiency for electric utilities is kilowatt-hours of output per kilowatt of installed capacity. This relationship, while varying with cyclical changes in business somewhat, shows a definite upward trend. In 1937 3.34 kilowatt-hours of electricity were generated with each kilowatt of installed capacity. By 1946, the ratio had climbed to 4.45 and was 4.66 in 1957 after reaching a peak of 4.93 in 1948.[37]

In addition to more efficient use of existing facilities, utilities have offset the impact of rates based on original cost during a period of rising prices by introducing technological changes to

[37]"Industry Statistics," Electrical World.

improve operating efficiency. An outstanding instance can be found in the steam generating electric utilities where the cost of fuel is an important operating item. Here both cost and thermal efficiencies have resulted. From 1948 to 1956 the average cost of fuel per net kilowatt-hour of production declined 31%; this resulted from a 25% increase in thermal efficiency as measured by the heat rate (BTU per kilowatt-hour) and a 28% decline in the amount of coal needed to produce a kilowatt hour of electricity.[38] In summarizing the net results of these improvements in the electric utility industry from 1941-1956, one authority has estimated a 33% increase in productivity in the use of coal, 25% increase in efficiency due to the installation of larger generating units, and a 20% increase due to improvement in the load factor.[39]

Changing attitudes of commissions.--Coupled with this increased technological and managerial efficiency has been a growing awareness on the part of many regulatory commissions, on the state level at least, that some action should be taken to recognize the changing value of the dollar. These attempts to cope with the problem have usually remained concealed under the veil of "fair value"--a concept professed by about a third of the state commissions.

The means used in adjusting (in many case, only superficially) allowable earnings for inflation include the use of an end-of-period or forward rate base and adjustment via changes in the rate of return. Under the former method, the state commissions will use an end-of-period

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[38]Calculations are based on information contained in "Industry Statistics," Electrical World and Edison Electric Institute, Statistical Bulletin (New York: Edison Electric Institute, 1952, 1957).

[39]Owen Ely, "The Outlook for Electric Utilities," Public Utilities Fortnightly, LIX (March 14, 1957), p. 395.

rate base or a hypothetical one representing the rate base for some future period as the denominator in determining whether present earnings and, thus, present rates are adequate. Usually an end-of-period or future base will be slightly larger than the average rate base for the period. Although some twenty-one states have, at some time or other, used this method, it accounts for only a very small adjustment since it is still premised on heterogenous dollar costs.[40] Indeed, it can be argued that it is no adjustment at all for rising prices since if rates are to be set for the future, a future rate base ought to be used anyway.

Increasing the rate of return to compensate for erosion of the rate base in real terms has been used in twelve states.[41] In many cases, the adjustment takes the form of an allowance for attrition; that is, the initial rate of return is increased so that when retired plant is replaced in the near future with higher-priced plant the rate of return on the new rate base will be what was originally intended. Attrition allowances, in essence, merely adjust for the effect of rising prices on equipment that will be retired in the next three to five years.

Where the adjustment goes beyond a simple attrition allowance, some progress toward compensation for price inflation occurs. Nevertheless, the adjustment must of necessity be arbitrary in the sense that the impact of inflation, for regulatory purposes, falls on measurements of the rate base. In the past when great difficulty and lengthy litiga-

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[40] "Hard Look at Regulatory Climate," Electrical World, CLI (February 9, 1959), p. 76.

[41] Ibid.

tion accompanied the ascertainment of reproduction cost, emphasis on prudent investment with a flexible rate of return is understandable. Nonetheless, trying to adjust for defects in the rate base through the rate of return seems to begin from the wrong place.

Technological improvement, growth in the load factor, and some partial recognition of price-level changes by regulatory agencies have, nonetheless, failed to protect utility earnings and investment. From indications presented above, it would appear that utilities have suffered in absolute terms and certainly relative to other types of investments. It would seem appropriate, therefore, to investigate how common-dollar accounting could adapted for regulatory use.

A Proposal for the Use of Common-Dollar Accounting

The earlier pages of this chapter contained an introduction to the major problem of rate setting--determining the cost of the service of investors' capital. This is normally obtained by applying a rate of return to a rate base which is supposed to represent the amount of the investment. Since utility investment for rate making cannot be measured by earning power, logic suggests that it should be measured either by the current value of the physical assets or by the real exchange value at the time the investment was made, but not simply the sum of a group of unlike dollars.

Using current values of physical assets as the measure leads to the difficulties outlined above under the reproduction-cost-of-service and reproduction-cost-of-plant theories. The proposal put forth here involves measuring the utility investment in terms of the purchasing power committed to the enterprise--what might be termed an original-real-

cost concept. While the author feels that actual investment should be the starting point, original dollar cost fails to represent the real cost of investing following a substantial decline in the purchasing power of the dollar.

Neglecting to consider the purchasing power of investments imposes a double inflationary burden on public utilties. First, the charges made for resources consumed in production are based on more valuable dollars than the current dollars in which the recovery is actually made. Secondly, the compensation for the use of facilities is measured in terms of older, more valuable dollars but is actually paid in current, cheaper dollars. In brief, both the return of and the return on utility investment is inaccurately stated if changes in the value of the dollar are ignored.

In achieving a better measurement of the return of and the return on utility investment, regulatory agencies would benefit from the use of common-dollar accounting. Substituting adjusted accounting statements for present statements would provide reasonable, objective data concerning the real earnings of utilities and the real investment upon which they should be allowed to earn a return. Procedures similar to those outlined in Chapter II could be used to convert the existing statements. One of the severest critics of utility regulation recognized adjustment via index numbers as an acceptable solution to the public utility problem.

> Better adjustment of return to purchasing power would be attained if actual investment were increased or reduced as prices rise or fall. This could be effected through application of suitable price index numbers to actual dollar investments. The results would be reasonable and equitable in relation to changing prices, . . . In such instances, systematic modification of the rate base through price index numbers would be a practical and effective means of stabilizing the returns to investors, without

serious difficulties of application and with systematic administration.[42]

The amount of depreciation charged each period under common-dollar accounting would indicate the amount of funds which must be recovered out of current revenues in order to maintain the value of the assets in terms of purchasing power. If the customers of utility services are to pay the full cost of those services, the utility must recover the purchasing-power equivalent of the cost of property consumed in supplying the service as part of the price of that service. This cost of assets used up is independent of the capital structure of the enterprise, resting solely on their estimated service lives and their original costs converted to common dollars. The amount of fixed-dollar obligations does not influence the adjusted depreciation charge.

Senior securities and the rate base.--However, the presence of senior securities on the equity side of a firm's position statement does affect the measurement in current dollars of the rate base--the investment upon which the utility is allowed to earn a return. As related previously, the rate of return is frequently an average of the capital costs of each of the various kinds of capital in the rate base (bonds, preferred stocks, and common stocks) weighted by the respective amounts of each. In this way each type of capital supplier is viewed as a separate investing group in the determination of the allowable rate of return. The rate base could be determined in a similar manner --that is, by treating each type of capital supplier as a separate investing group.

The return to the senior securities is limited to a dollar

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[42]Bauer, op. cit., p. 168.

amount usually expressed as a percentage of the face value of the securities. Since by terms of the contract, the bondholders' and preferred stockholders' returns are expressed solely in dollar terms, regardless of changes in the value of the dollar, reason would suggest that their capital contribution also should be expressed in original dollar terms with no adjustment for a varying price-level. In other words, only the common stock equity should be adjusted for fluctuations in the value of the dollar. The purchasing-power adjustment to the senior securities certainly does not represent an investment by the common stockholders; therefore, since no return on such purchasing-power adjustment can be assigned to the capital suppliers who contributed the original purchasing power, the adjustment should be ignored for rate-making purposes.

The problem does arise, however, as to the treatment of these purchasing-power "gains" when the bonds or preferred stocks are retired. Until this time, the purchasing-power adjustment of the senior securities is simply shown as an adjustment to the bond or preferred stock equity in dollar terms for statement purposes, as shown in Chapter II, and is disregarded in determining the rate base. During the period that the senior securities are outstanding, there is no <u>realized</u> advantage accruing to the residual equity. Such advantage would come about only when the debt is liquidated with less purchasing power than was originally received. As debt is a promise to deliver dollars in the future, it would appear that any "gains" should not be recognized until the year of retirement when the cheaper dollars are actually delivered.

The treatment of the difference between the purchasing power originally contributed and the amount actually paid when the senior

securities are retired is open to debate. The difference does not represent a gain to the business as a whole, but, rather, constitutes a rearrangement of the various investor equities. Since it differs radically from the normal operating activities of the business and, in fact, from other types of gains associated with the utilization and disposition of assets, an acceptable method would appear to be to treat it as a capital adjustment--a donation by one group of investors to the entity.

Therefore, when the bonds or preferred stock are retired, the purchasing-power adjustment, which heretofore was shown as an adjunct to the senior security, would become a specifically identified part of the equities in the firm for statement presentation and analysis. As donated capital, however, the utility should not be allowed to earn a return on it as part of the rate base. The weight of authority and reason has established that contributions made by individual consumers (customer deposits and grants in aid of construction) or property donated by a community should not be included in a valuation of the rate base. There seems to be no reason why this same principle should not apply to capital donations from the bondholders.

In summary, the rate base under this proposed plan would consist of the dollar amounts of bonds and preferred stock plus the purchasing-power equivalents of the actual investment (capital stock and retained earnings) made by the common stockholders. The purchasing-power adjustment to the senior securities would be shown as an adjunct to the senior securities until realized; then, it would be shown as an adjunct to the residual equity.[43] In neither case, however, would it be counted

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[43]An ancillary accounting question concerns the treatment of the purchasing-power adjustment when bonds are refunded. Does refunding

as part of the rate base.

Additional Reasons for Adjusting Rate Base to Common Dollars

Preceding the proposal for using adjusted data in computations of the rate base was a brief discussion of utility earnings during the past inflationary period. This review indicated the need for some recognition of changing price levels in the regulation of utility earnings. More specifically, the arguments for rate-base and earnings adjustments can be grouped around two themes. If rates do not reflect the decline in the value of the dollar, utilities may experience difficulty raising new capital necessary for expansion. Secondly, as a matter of equity, utility shareholders should be given the opportunity to adjust their dollar earnings in order to maintain a reasonable real return on their investment.

Difficulty in raising capital.--There is, to date, little evidence that failure to recognize price-level changes explicitly in rate regulation has hindered utility efforts to raise new capital. However,

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constitute a suitable occasion for recognizing the donation of purchasing power from the bondholders to the stockholders? In determining the adjusted rate base, the question does not arise because the adjustment is never included in the rate base in any case. In accounting theory, however, it is a very moot point.

This author is inclined to accord similar treatment to a refunding as to a retirement. Refunding rarely involves a direct exchange since no investor is required to subscribe to the new issue. Rather, a refunding operation consists of a telescoping of two distinct transactions--(1) a raising of capital through the issuance of a new security usually containing different features sold to different people; (2) a termination of the existing bond contract through a redemption of the bonds. Accounting theory treats the acquisition of a new asset when an old asset is traded in as two transactions; the same can be said for an exchange of liabilities. Therefore, unless it can be shown that the new issue is merely an extension or modification of the old, in the opinion of this author the presumption should be that there has been a retirement of one liability and the creation of a new liability.

lack of access to the capital market is one thing; easy access to it is another--a relative matter.

The question becomes, then, not whether new capital can be raised, but, rather, whether the price which the new investor is ready to pay will continue to fall. This price, in some cases, may have already declined in real terms; if the long-run attitudes of investors become pessimistic as to their prospective returns on utility investments, the price that the new investor is willing to pay may fall in dollar terms also.

> A prime objective of investors during periods of inflation is to put their money into equities which have at least a chance of maintaining an economic value (purchasing power) equivalent to (or approaching) the current economic value of the funds committed at the time of investment. To deprive an equity security of this attribute (by limiting its earning power to a stated number of dollars of unpredictable value) is to remove it from the class of securities to which venture capital can be attracted.[44]

Investors will be reluctant to supply venture capital if they fear that their anticipated return will be limited to a specified percentage on their original dollar investment when the value of the dollar undergoes significant changes. When the investor loses confidence in the ability of an enterprise to maintain its capital in terms of relative purchasing power, the attraction of new capital will become exceedingly difficult except under very unfavorable terms, resulting, in the long run, in higher prices to consumers, poor service, or both.

In a letter sent by the securities committee of the Investment Bankers Association of America to the chairmen of all the public utility commissions in November, 1956, a note of warning was sounded concerning

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[44]William A. Paton and Howard C. Greer, "Utility Rates Must Recognize Dollar Depreciation," Public Utilities Fortnightly, LI (March 12, 1953), p. 353.

a tendency in the above direction. The letter stated in part:

> We are finding that many individual investors are becoming apathetic about public utility common stocks as vehicles of investment . . . . Many investors feel that public utility stocks fail to offer protection against inflationary trends and shy away from them.[45]

In some of the South American countries where inflation has been more rampant than here, private capital investment in public utilities has dwindled immensely because rates were tied to the philosophy of original dollar cost. In appraising the situation in Brazil where rates are set to produce a 10% return on historic dollar investment, the National Economic Council in Brazil stated:

> The government adopted legislative standards that did not conform with the devaluation of their currency . . . the legal and economic conditions that surround the development of public services are so uninviting and unattractive that they have been sacrificing seriously the expansion of the same.[46]

Although individual utilities may not need new capital at a particular moment in time, regulatory authorities should treat present investors fairly in order to encourage others to furnish capital on reasonable terms when it is needed. If some relief from inflationary pressures is not offered to present investors, future investors may well be unwilling to continue to supply venture capital and to assume the risks of inflation and to bear its losses. Looking at the positive side, investors considering putting their funds in utility stocks would have less hesitation if they knew that those who committed purchasing power in the past were not presently being penalized in the form of a

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[45] "Investment Bankers Look at Utility Problems," Public Utilities Fortnightly, LIX (January 3, 1957), p. 46.

[46] Lucas Lopes, "Electrical Energy in Brazil," Brazilian Technical Studies, U. S. Institute of Inter-American Affairs (Washington, D. C.: U. S. Government Printing Office, 1955), p. 297.

low purchasing-power income.

In recent years many of the larger utilities have invested huge sums in individual or joint projects to explore atomic power production and other methods of providing utility services more economically in the future. The capital outlays connected with this research and its concomitant expansion of facilities benefit the users of utility services and the economy as a whole in the long run but entail large risks at the time they are made. Utilities should be encouraged to be progressive; such progress, however, would become increasingly difficult if venture capital were discouraged from entering the utility field.

Equity.--Irrespective of the effect on raising new funds that adjusting the capital contributions of the past investors to current dollars would have, a case can be made for a purchasing-power rate base on the grounds of equity. In the public utility sector, private resources are regulated by governmental agencies; the value of those resources depends, to a large extent, on the nature of the regulation. Since the resources have been contributed by private individuals they must be guarded against arbitrary confiscation. Professor Morton stated his concern on this point quite pungently:

> In the case of gradual confiscation accomplished by reducing the rate of return below reasonable levels . . . new common stock could be sold at lower prices which diluted the equity. In the absence of constitutional protection against such dilution, gradual thinning of the equity could continue for quite a while until investors completely lost confidence and brought the process to a halt. Economic necessity stands in the way of simple and direct confiscation in a capitalistic society, but it is weak protection against piecemeal expropriation via an inadequate return, and no protection at all against gradual expropriation by means of creeping inflation. It is the Constitution, not the necessity of raising new capital, that

stands in the way of the last two methods of expropriation.[47]

If utility earnings have not been allowed to rise enough during inflation to give the stock such a value that new stockholders will contribute as much real resources (purchasing power) as the old stockholders did, then there is an apparent inequitable treatment of past investors compared to present ones. Such inequity may be justified if the real resources contributed by the new investors are more productive. The point being raised here is that with original-dollar costs the difference in the real capital contributions of the old and new stockholders remains hidden. On the other hand, common-dollar accounting would provide for consistent measurement and would make regulatory agencies cognizant of the nature and magnitude of the difference.

Unlike the unregulated areas of our economy, utilities are not free to adjust or even try to adjust their rates upward to compensate for inflation. Equity would seem to demand that stockholders in utility enterprises should be rewarded as fairly and treated as equally as stockholders in unregulated industries, subject, of course, to differences in risk. Stockholders in unregulated industries may attempt to raise their consumer prices to offset the declining value of the dollar and keep their real return intact. Utility equities should not be denied this opportunity simply because their rates are regulated. Under the proposal contained in the previous section, utilities would not be receiving any type of preferred treatment, but, rather, only equal treatment.

Appraisal of Common-Dollar Accounting in Regulatory Policy

In the course of the discussion contained in this chapter, a

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[47]Morton, op. cit., p. 124.

number of possible rate bases have been examined and rejected. The one remaining to be evaluated is the proposal to adjust the common stock equity for changes in the general price level by using index numbers.

Unlike the original cost concept, this proposal recognizes explicitly changes in the purchasing power of the dollar. The customer is charged the full real cost of the service and the utility is given the opportunity to earn a return commensurate with the purchasing power invested. However, unlike the reproduction-cost-of-service or reproduction-cost-of-identical-facilities concepts, the purchasing-power proposal is capable of rapid, systematic administration. As explained in Chapter II, the application of index numbers to the unconverted statements can be accomplished with relative ease.

In short, this proposal contains both the administrative advantage of original cost and the opportunity for protection against inflation offered by reproduction cost. It eliminates, however, the defects of clumsy, arbitrary estimates contained in reproduction-cost and fair-value methods. Adjusting the rate base for price-level changes would encourage the attraction of new capital, other things remaining equal. Moreover, inherent in the establishment of this definite method of rate-base determination would be an automatic provision for rate flexibility if the general price level either rises or falls.

Technological Changes

At the outset it should be noted that this proposal for using common-dollar accounting in the rate base does not necessarily approximate the theoretical results which would exist under competition. As pointed out earlier in this chapter, the rate base which best accomplishes this goal is the reproduction-cost-of-service base (the cost of

capital in present dollars required to supply the existing service on the basis of present technology). Increases in technology can offset increases in cost due to advances in the prices of specific capital assets.

A reproduction-cost-of-service rate base, however, is administratively impractical and has been discarded by the commissions and courts. Instead, they have focused on a rate base which supposedly measures the actual investment that has been made. It is under this philosophy that common-dollar accounting is offered as a rate base. If the payment for the use of capital is to be based on the amount of actual investment, then the investment ought to be measured consistently; common-dollar accounting achieves this end.

Effects on Customers

An important question concerning this proposal involves the effect on consumers through changes in rates and quality of service. Rates would probably rise, but, after an initial adjustment, the real amount of purchasing power expended per unit of utility service would not rise. For those whose incomes rise as fast or faster than the general price level, rates adjusted for price-level changes would impose no increased real burden at all.

The presumption toward which utility regulation has moved is that customers should be charged the cost, in a broad sense, of supplying the service. If depreciation charges do not recover the equivalent purchasing power invested in the assets consumed in production, users of utility services will not be paying the real cost of service but will be, instead, using up utility capital without compensation. As has been stated so frequently, cost is not simply a conglomeration

of dollars, but, rather, a measure of the original real sacrifice made in making the investment.

The principle of paying the full cost of service can be applied to the return on capital also. Including the compensation to the capital suppliers as a cost loses much of its significance when the measurement of the cost differs from the measurement of other costs and revenues. Common-dollar accounting, although it may result in higher consumer rates, provides a better measurement of the costs which utility customers are to be charged.

Empirical evidence on consumer rates.--Since there are no state or federal commissions that have adopted complete, common-dollar accounting as outlined above for regulatory purposes, no direct comparisons are available on consumer rates. Nevertheless, an indication of what might occur can be found in a comparison of consumer rates under the "fair-value" states and under the "original-cost" states. In the former, varying degrees and methods of adjusting for the changing value of the dollar can be found.

It seems to be a safe generalization to say that the "fair-value" states have been more liberal in their allowable earnings than other states. In a survey of 103 Class A and B private electric utilities the rate of return on total capitalization in 1957 was 6.25% under fair value and 5.43% for original-cost companies.[48] Of the twenty-five companies with the highest rates of return, twenty came under fair-value jurisdictions.[49] In a study of gas utilities the same situation

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[48]"Fair Value Yields Top Returns," Electrical World, CXLIX (May 5, 1958), pp. 97.

[49]Ibid., p. 98.

existed. In fair-value states the return on net plant was more than 10% higher and the return on common equity 20% higher than in original-cost states.[50]

"Fair value regulation, while appearing to be much more liberal under present conditions than stringent original cost regulation, has actually paid off in service rates which are relatively low in comparison with rates prevailing in states using original cost rate base."[51] The preceding quotation summarizes the results that have been uncovered when fair-value rates and original-cost rates are compared. Consumer prices in the states allowing more liberal earnings appear to be, in the long run, as low or lower than in the other states. Table 9 shows the comparisons for the electric utility survey referred to above. The electric utilities in fair-value jurisdictions had lower average monthly bills for each of the four residential classifications. Moreover, the bills increased less from 1953 to 1957 in these jurisdictions for the 250 hwhr. classification which best approximates the United States average.

Perhaps, an important reason for these somewhat surprising results, aside from increased operating efficiency, would be the decline in the cost of capital over time: "The protection of the legitimate expectations of the investors is important to the consumer, for in proportion as the risks of utility investments are diminished, the lower cost of capital will benefit the consumer."[52] By granting some

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[50]Donald C. Neill, "Common Stock Equity Costs for Gas Utilities," Public Utilities Fortnightly, LXI (January 16, 1958), p. 82.

[51]Martindell, op. cit., p. 760.

[52]Irston R. Barnes, The Economics of Public Utility Regulation (New York: F. S. Crofts and Company, 1942), p. 561.

TABLE 9

AVERAGE MONTHLY RESIDENTIAL BILLS FOR ELECTRICITY[a]

Federal Power Comm. Use Classification	Fair-Value States		Original-Cost States	
	Avg. Bill 1957	% Increase 1953-1957	Avg. Bill 1957	% Increase 1953-1957
40 kwhr.	$1.86	3.3%	$ 2.06	2.5%
100	3.75	3.9	4.03	3.3
250	7.09	2.5	7.52	3.4
500	9.88	.7	10.77	4.2

[a]"Bills are Lower with 'Fair Value,'" Electrical World, CXLIX (June 16, 1958), pp. 71-72.

protection against a rising price level, the regulatory commissions in the fair-value states have reduced the risks of investment. Neill, in his study of gas utilities, found that both the interest cost and common stock equity cost (as measured by earnings-price ratios) were lower for companies in fair-value states than those in original-cost states.[53]

Service.--Another consideration equally as important as the price paid for utility service is the quality of service received. One would not expect consumers to be interested in the lowest possible rates but, rather, in the maintenance of satisfactory service which depends on a company's ability to cover its present real costs and to attract new capital--both of which would be facilitated by using adjusted data in the rate base. Full recovery of the real costs plus a

[53]Neill, op. cit., pp. 81-82.

more accessible avenue to the capital market should lead to faster introduction of new productive techniques and facilities, ultimately contributing to improved service.

On the basis of the facts and inferences above, one could probably say that the use of an adjusted rate base would have very limited, if any, adverse effects on customers in the short run. In the long run with the improved monetary earnings flowing from the implementation of an adjusted rate base, the tendency would seem to be toward better service at a lower cost.

The Position of Commissions and Courts

Attempts and proposals to adjust the rate base or to grant inflationary relief in the form of increased monetary earnings have sometimes met with strong denunciation by commissions and courts. On the other hand, adjustments for the changing value of the dollar have been made by other courts and commissions also. Consequently, to complete the discussion of the price-level proposal, some brief attention will be devoted to the attitudes and arguments of various courts and regulatory commissions.

At the outset, it should be noted that the use of common-dollar accounting in establishing the rate base has not been expressly barred by recent Supreme Court dicta. Under the end-result doctrine instituted in the Natural Gas Pipeline and Hope cases, the methodology used is irrelevant as long as the end result is not unjust or unreasonable. On the national level the courts have never renounced fair value as such; rather, the recent trend toward original cost has arisen largely from the action of the federal regulatory commissions acting under the relative freedom in methodology given by the Supreme Court. Their pre-

ference for original cost would surely hamper the introduction of adjusted accounting but would not affect its legality.

The arguments of regulatory agencies against fair-value and purchasing-power adjustments typically have centered around three ideas: (1) stockholders are not entitled to protection against inflation, (2) adjustment is not necessary to raise capital, and (3) the use of index numbers to adjust accounts is not acceptable. Each of these will be considered in greater detail below.

Unequal-treatment argument.--Under the first of these reasons, nominal historic cost is justified on the basis that the stockholders are morally not entitled to any more protection against inflation than are the ratepayers and the bondholders. In other words, everyone suffers from inflation and to grant relief to just the common stockholders would be inequitable since they have assumed the risk of a continually rising price level when they made their investment.

If this contention were valid, one would expect to find a high allowable rate of return. The rate of return is supposed to consider the risks involved in making a utility investment. If stockholders have assumed the risk of confiscation of their property through adherence to original dollar costs in an inflationary period, the compensation for assuming this risk should be large. The real gist of the equity argument, as discussed earlier, lies not so much in equal treatment of different classes (stockholders, bondholders, and consumers), but in equal treatment of people in the same class. Stockholders in other segments of the economy are free to try to adjust their prices for changes in the value of the dollar; utility stockholders are not. Herein lies the inequity.

Raising new capital.--Some commissions have based their rejection of purchasing-power adjustments ostensibly on the grounds of practicality. The question of equity to preinflation investors is considered irrelevant as long as new capital can be attracted to the industry without adjustments for inflation. The possible long run effect of such a policy was discussed previously along with the fact that the ability to attract capital cannot be considered apart from the fairness of the terms on which it is acquired.

Support for adjustment.--Contrasting with the opinions against price-level adjustment expressed above are some very strong commission and court rulings favoring some type of recognition. Although still in the minority, these rulings present an encouraging side to the question of the feasibility of introducing the purchasing-power rate base proposed in this chapter.

Mention has already been made of states which still recognize fair value as the basis for utility regulation. An increasing number of recent cases indicates a growing acceptance of the purchasing-power concept in these states. Missouri, Minnesota, Alabama, Illinois, Indiana, and Iowa have all had recent cases in which price-level changes have been an important consideration. Perhaps, the most renowned of these cases in the sense of acknowledging the impact of changes in the value of the dollar to the fullest degree occurred in Iowa in 1957. Here the Iowa Supreme Court granted both a rate base and a depreciation provision founded on trended cost.

> The fixing of just and reasonable rates must function in a world of change, and must constantly readapt itself to the effect of those changes. It would, of course, be so much easier to think of dollars as something constant and unchangeable, but that unfortunately is not true and has not been true during the last sixty years, if ever it was. The company must have an adequate total

> allowance in terms of the present buying power of money because that is the only kind of money in use today.
> . . . . . .
> The arguments against fair value are all ones of expediency not ones of justice or fundamental fair treatment.[54]

Acceptability of index numbers.--Occasionally writers in the field of public utility regulation have raised doubts as to the acceptability of index-number adjustment of the accounts. In the main their misgivings can be traced to West v. Chesapeake and Potomac Telephone Company in 1935, in which the Supreme Court rejected the use of index numbers in determining reproduction costs.[55] The decision was split six to three with the majority seeming to be more opposed to the arbitrary methods used in combining individual indices than in the use of index numbers themselves. For, as Justice Stone indicated in his dissent, the same court had approved the use of index numbers in two cases preceding the 1935 case.[56]

It would seem, therefore, that the Chesapeake and Potomac case does not afford definite proof that the employment of index numbers is unacceptable. The early tradition of acceptance of index numbers, the particular circumstances surrounding this one case, and the end-result doctrine--all point toward the acceptability of a logically conceived, thorough plan of adjustment via index numbers. Where state commissions have rejected price-level adjustment with index numbers in other cases, the rejections have, for the most part, been directed at

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[54] Iowa-Illinois Gas and Electric Company v. City of Fort Dodge, 20 PUR 3d 159, 177-178 (1957).

[55] 295 U. S. 662 (1935).

[56] Clark's Ferry Bridge Company v. Public Service Commission, 291 U. S. 227 (1934) and St. Louis and O'Fallon Railway Company v. United States, 279 U. S. 461 (1929).

the principle of adjustment per se and not necessarily at the use of index numbers.

Summary

In this section an attempt was made to relate accounting data adjusted for price-level changes to the problems of utility regulation. A proposal was offered which would tend to remove the relative disadvantage of utility investors in an inflationary period. Under this proposal the utility would be allowed to adjust its rates to recover its costs expressed in terms of current purchasing power along with a return on the capital invested, measured again in terms of common dollars. This adjustment, however, would only apply to the common stock equity.

Upon further analysis, it was urged that such an adjustment is necessary to accord equity to the utility investor. Moreover, the seeming disadvantages of the plan disappear when closely scrutinized. New capital can be raised on more equitable and more economic terms, tending in the long run to reduce the cost and improve the quality of utility service. Little indication was found that utility prices would increase greatly, if at all. In addition, although particular federal and state commissions have thus far resisted attempts to recognize changing price levels, no great legal obstacles have appeared which would bar the introduction of this proposal. In fact, in many states current regulatory attitudes seemed quite favorable.

Taxation Policy

In addition to impingement by the regulatory authorities on their freedom to set consumer prices, utilities along with practically all other corporations feel the impact of governmental decisions in

another important sphere--that of taxation. As a consequence of the widespread impact of taxation, many other factors besides the measurement of income must be considered in arriving at any conclusions about tax policy.

Nonetheless, since the amount of the tax liability depends to a large extent on the definition and measurement of business income, the potential influence of common-dollar accounting on taxation policy for utilities could be quite significant. The intent of this section, therefore, will be to consider the nature of the problems arising when income for tax-levying purposes is measured using an unstable monetary unit. Moreover, some possible solutions to the tax problem will be reviewed and briefly analyzed.

Theoretically, in the utility field any inequities in the incidence of the tax among the owners of different utility companies arising from the use of a fluctuating measuring unit are transferred to the consumers. Early in regulatory development, the principle was established that income taxes should be treated as a cost of operation. Although an occasional exception to this rule can be found in some states (excess profits taxes during the war were usually not treated as a cost of production), the basic precept established in 1922 by the Supreme Court still holds:

> In calculating . . . a proper return, it is necessary to deduct from gross revenue the expenses and charges; and all taxes which would be payable if a fair return were earned are appropriate deductions. There is no difference in this respect between state and federal taxes or between income taxes and others.[57]

Ideally, then, income tax charges are reflected in consumer rates and changes in the amount of the tax liability lead to changes in the prices charged for the use of utility services. Practically,

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[57] Galveston Electric Company v. Galveston, 258 U. S. 388, 399 (1922).

however, some of the incidence may well fall on the investor. Rate adjustment takes time and, thus, until rates are adjusted any increase in the tax burden falls on the investors in the enterprise.

In addition to the impact of these regulatory lags, consumer rates may not be adjusted even over time. If the utility management is able to offset the increased tax burden by reductions in other costs, rates would not be adjusted. If the utility is earning above what is considered its normal return, the investor would bear the weight of an enlargement of the tax charge. At the other extreme, if demand conditions facing the utility were such as to make it virtually impossible to increase rates even if the increases were justified, an upward change in the tax burden would rest solely on the investors. It would seem, therefore, that enough exceptions to the ideal treatment of the tax charge appear to warrant the investors' concern over possible inequities in measuring the tax liability.

Taxation Inequities Caused by an Unstable Dollar

Under the present system of taxation inequities may arise because income taxes are levied on the basis of monetary income rather than on the basis of purchasing-power income. The two differ to the extent that the measuring unit, the dollar, fluctuates in value. Because these changes in the unit of account are not considered, inequities in computing tax liabilities may occur between firms using durable capital to produce net revenues and firms using little or no durable capital and between different firms in the same industry depending on the nature and age of their assets.

Taxation of capital.--A general precept throughout the his-

tory of income taxation has been that capital consumed in producing revenues should not be taxed as income. In their interpretations of the Sixteenth Amendment to the Constitution granting the right to levy income taxes, the Supreme Court has consistently maintained that income does not include a return of capital (investment): "Whatever difficulty there may be about a precise and scientific definition of 'income,' it imports . . . something entirely distinct from principal or capital. . . ."[58] This would seem to imply that amounts withdrawn from revenues to preserve intact the capital which produced the revenues should not be taxed as income.

Deducting a charge for depreciation from revenues in determining net income is the method used to account for the capital that is used up in producing the gross revenues. The question then arises, "What constitutes the capital of an enterprise--the dollar amount shown as capital or the real economic sacrifice undergone in acquiring the particular assets as measured by the purchasing-power foregone?"

If it is the latter, then changing price levels confuse the distinction between income and the recovery of capital. Capital is used in the production of revenue; the unit of measurement for each should be of the same size. Expressing the depreciation charge solely in dollar terms without regard to the decrease in the value of the dollar over the past twenty years does not achieve this result. Rather, it results in a portion of the real capital investment exhausted being treated as income and thus subject to the income tax levy. Unless depreciation charges are adjusted to a common dollar, a part of the real capital investment of the utility measured in terms of purchasing power

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[58] Doyle v. Mitchell Brothers Company, 274 U. S. 179, 185 (1918).

contributed is gradually being drained as taxes. Such a capital levy is contrary to the established tenets of income taxation but remains concealed by the changing value of the dollar.

Inequity among taxpayers.--Measuring the taxable income of all businesses with a varying yardstick frequently leads to injustices in the distribution of the tax burden. Because the distortion caused by an unstable dollar on the determination of purchasing-power incomes varies among firms in the same industry, the tax burden while ostensibly appearing to be levied equitably on equal monetary incomes may actually strike some firms harder than others in terms of the net purchasing power available to pay the taxes. The real tax burden will vary with the nature of the business and with the quantity, type, and age of the assets used in the enterprise. It would seem that variances in the real tax burden should correspond more closely to changes in real incomes and ability-to-pay rather than to the factors listed above.

Taxing the return of capital as if it were income is bad under any circumstances, but it is much worse when done unequally as among industries and firms because the nature and dates of acquisition of their physical assets are not the same. For example, assume two utilities bought the same piece of generating equipment. The first firm paid $100,000; the second firm paid $110,000 three years later after the general price level had risen 10%. Although the amount of purchasing power expended, the economic sacrifice, was identical in both cases, the tax charge will be less for the second firm (assuming gross revenues and other expenses are the same) because capital consumption charges for tax purposes are computed on dollar amounts rather than the true economic cost. Measuring taxable income in an unadjusted dollar

discriminates in real terms against the firm with older assets.

In a similar manner, refusing to recognize the impact of changing values of the dollar for tax purposes discriminates against the highly capital-intensive firms. In particular, those firms with a large amount of fixed assets, like utilities, suffer relative to firms with a large amount of inventories where the physical turnover is much faster. Moreover, the tax laws make some attempt in the form of Lifo to grant inflationary relief to the holders of inventories, wherein the companies with relatively fixed capital are allowed to base depreciation only on original dollar costs. With each rise in the price level as the years pass, the disparity between the dollar amount allowed for tax purposes and the current dollar equivalent of the purchasing-power investment used up increases.

The implications of the above inequities for the future growth of the economy ought to be pondered. Future productivity depends to a large extent on the amount of real capital in the economy. If the tax burden is to avoid impairment of this future productivity, reason would suggest that there should be no tax levy placed on the real capital of an enterprise. Moreover, economic growth in the past has stemmed from an increasing capital-labor input ratio. Yet the non-recognition of inflation in income tax regulations places a heavier real tax burden on those firms using a lot of capital, thus distorting the assignment of capital in our economy.

Other Equity Considerations

Although an argument can be formulated supporting purchasing-power depreciation as a means of treating investors in capital assets justly in real terms, a separate equity question arises in the case of

investors whose assets consist primarily of financial obligations. With a rising price level the holders of promises to pay expressed in dollars suffer purchasing-power losses which are never recognized for tax purposes. Would it be equitable to tax only purchasing-power gains (by allowing companies to deduct purchasing-power depreciation from gross revenues) and to ignore the purchasing-power losses on financial assets?

It has been argued that consistent application of equity considerations between firms having depreciable assets and firms having financial assets automatically leads to one of two taxation standards.[59] Under the monetary-equity standard in use presently, companies with depreciable assets are entitled to original-cost depreciation while companies with financial assets obtain no recognition of their purchasing-power losses. Under the real-equity standard, the former would deduct purchasing-power depreciation while the latter would have their incomes corrected for losses in purchasing power on the financial assets. The present monetary-equity standard has the advantage of being administratively more feasible. Implicit in the above argument, however, is the assumption that the relative tax burden on each of the groups of asset holders (depreciable and financial) would be the same under either method. Perhaps this is an area for further empirical research.

The main question raised above concerning equity in taxation is this, "Which goal is more important--equal treatment of those in the same situation or equity in the treatment of those in different situations?" There is no denying that both are desirable; the first, equal

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[59]See Brown, op. cit., p. 13.

treatment of equals, seems to be more important and easier to define. Tax discrimination between different lines of endeavor is important, but tax inequality within a single group should be intolerable.

Using adjusted accounting data for tax purposes attempts to avoid discrimination in taxes between the same group of taxpayers. All bondholders are taxed alike but all investors in capital assets are not. The fact that it would be very difficult to compensate some segments in the economy for purchasing-power losses (through tax recognition) should not be accepted as a valid reason for avoiding tax recognition of purchasing-power depreciation: "In other words, the presence of an incurable disease in one patient does not excuse failure to remedy a curable ill in another."[60] Professor Ralph C. Jones has argued along the same line:

> In the first place there is no reason to refuse to modify one harmful or unjust provision simply because other harmful or unjust provisions remain. To do so is to deny all hope of improvement. In the second place there is the implication that the allowance of realistic depreciation deductions to business enterprises would somehow be injurious to other classes of taxpayers. This, however, is not necessarily or even probably the case.[61]

The purpose of the above discussion has not been to impugn the concept of equity among different groups of taxpayers but, rather, to emphasize the equally important or, perhaps, even more important idea of equal treatment of taxpayers in the same class. Investments in financial assets are, for the most part, speculations on changes in the value of the dollar. They usually can become liquid within a short period of time as contrasted with the relatively long-term commitments

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[60]Marvin Chandler, "Public Utilities as Investments from the Security Analyst's Viewpoint," Land Economics, XXX (August, 1954), p. 247.

[61]Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes, p. 160.

of funds characterizing capital goods investment.

Treating taxpayers in the latter group equally in real terms should not be dependent on an extension of the purchasing-power principle to other classes of taxpayers, however desirable such an extension may be. With the full realization that the problems of intergroup equity would not be solved, the next section will consider possible solutions to the intragroup equity problem, particularly in the area of depreciation charges.

Possible Solutions to the Taxation Problem

There are primarily two kinds of adjustment in use today to combat the possible understatement of depreciation charges. One method is to accelerate the rate of depreciation but limit the total amount taken over the life of the asset to original cost. Variations of this procedure have been adopted in the United States, Great Britain, Canada, Australia, New Zealand, South Africa, India, Pakistan, Italy, and Switzerland.[62] The other method adopted in France, Germany, Austria, Italy, Belgium and Holland is to abandon historic cost and adjust for the effects of inflation.[63] The first should be used to correct inequities in allocating the cost of an asset among the accounting periods to which it contributes service. The second should be used to correct inequities caused by the changing value of the dollar.

Accelerated depreciation and rapid write-off.--Often the first of the above methods, however, is advocated unrealistically to try to compensate for the second. Under accelerated depreciation, the

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[62]George Terbough, Realistic Depreciation Policy, Machinery and Allied Products Institute (Chicago: The Lakeside Press, 1954), p. 8.

[63]Ibid.

utility is allowed to charge a relatively larger portion of the asset's cost as depreciation in the earlier years of its life than in the later years. Rapid write-off extends this principle under certain conditions so that the full original cost can be charged as depreciation over a five-year period.

Under both of these methods the total tax charge over the life of the asset will be the same as under straight-line depreciation. The tax savings due to larger depreciation charges in the early years compared to the straight-line method is offset by larger tax charges in later years when depreciation is less than under straight line. Thus, these methods of accelerating the depreciation charge can offer no permanent tax savings unless the total amount of assets is being continually expanded.

Nevertheless, some advantage does accrue to a business by using accelerated depreciation. Funds saved in taxes in the present may be used profitably until they must be paid in taxes later; in other words, the present value of a dollar now is greater than the present value of a dollar five or ten years hence. In addition to this benefit which exists independent of price-level changes, methods of speeding up the depreciation charge offer some slight protection against inflation in that the dollar saved in taxes now has a larger purchasing power than the dollar which will have to be paid in taxes later.

Despite these advantages accelerated depreciation is, at best, only a small and often temporary offset to inadequate provisions for depreciation. To limit depreciation charges to original cost is to ignore the fact that the basic measurement of cost is inaccurate and, thus, is to limit any advantages from accelerated depreciation to those

arising from the timing of the charge. These, in turn, offer little correction for the price-level problem. Indeed, it may be argued that accelerated depreciation offers no correction of price-level inequities if it is an accurate estimate of the actual consumption of the productive services of an asset.

> If reducing-charge depreciation is correct depreciation, as it undoubtedly is for many kinds of assets, then the permission to use such methods for tax purposes merely corrects an existing injustice in the computation of allowable depreciation in dollars and provides nothing whatever to offset depreciation deficiencies due to price level changes.[64]

In short, it would seem that this method is not adequate for dealing with the taxation problems occasioned by changes in the value of the dollar.

Reinvestment depreciation.--A proposal which has gained critical attention over the past three years is one which would allow taxpayers to deduct, as depreciation, in the year an asset was retired the difference between the historic cost of the asset and the cost of replacing it. Entitled reinvestment depreciation, this proposal would allow this excess amount as a tax deduction only if the amount were reinvested in similar assets, although not necessarily in identical assets.

The difference between the adjusted original cost of assets being scrapped (governed by an index compiled by the tax authorities) and their historic cost would be available as a tax deduction as long as the difference was reinvested. In other words, this provision could not be used for partial liquidations or to set up funds to be diverted to other investment channels. Precedent for this type of provision can be found in the treatment of home owners who sell one residence and pur-

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[64]Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes, p. 105.

chase another. Any monetary gain on the sale of the first is not taxable if reinvested in the second home. To make the plan administratively feasible, there would probably be some time limit on the reinvestment; two years has frequently been suggested. The enterprise, then, would have to have retirement and reinvestment occur within two years; in the parlance of taxation, there would be a two-year carryover provision.

Reinvestment depreciation would at least give a more realistic tax allowance on those assets being retired. In addition, it would have the advantage of providing some tax funds in the year of replacement when presumably they would be most needed. Of course, such provision of funds is premised on the assumption that revenues in the year of replacement cover expenses, including retirement depreciation. On the other hand, the investors would be required to reinvest if they wished to be relieved of income taxation on their present real capital.

The degree to which reinvestment depreciation alleviates the inequities in taxation will depend, to a large extent, on the exact provisions concerning the cost base of the replacement. Reinvestment depreciation can be viewed with or without a reduction in the cost base of the new asset. Both the bills introduced into Congress in 1958 and 1959 to permit reinvestment depreciation would have decreased the depreciation base of the new investment for tax purposes by the amount of excess depreciation taken when the old asset was retired. In this case the amount of depreciation that will be allowed over the life of the new asset will be lessened by the reinvestment depreciation taken on the old asset when it is retired.

What the above proposal amounts to, in fact then, is a special

case of accelerated depreciation. A portion of the cost of a replacement can be written off immediately--the portion depending on the relation of the original cost of the old asset to its adjusted cost. As a special case of rapid write-off, this particular concept of the reinvestment depreciation proposal offers little permanent tax adjustment for changes in the price level since the total amount of depreciation is tied to dollar cost. Only a method allowing reinvestment depreciation plus depreciation on the full cost of the new asset attempts to grant permanent recognition to the fact that original-cost depreciation during the life of the old asset was not adequate to recover the real cost of the asset so that some additional allowance is necessary in the year of retirement.

Capital gains treatment.--Another possible way of giving partial relief from the taxation of real capital caused by strict adherence to original dollar cost depreciation when the value of the dollar is continually decreasing is through the medium of capital gains taxation. It would be possible to allow purchasing-power equivalents of original cost depreciation in determining ordinary taxable income and, then, to take the difference between original cost depreciation and purchasing-power depreciation as capital gains.

Such a step would not be a violation of the money-equity standard of taxation and, therefore, would not be as susceptible to intergroup inequity criticism as some of the other methods. Under present laws, capital assets which have increased in monetary value, even if the gain is caused solely by changes in the general price level, have this gain taxed at the lower capital gains rate when the gain is realized upon sale. It would seem that this same principle could easily be

extended to depreciable capital assets which are being sold piecemeal. In this case the realized money gain (the difference between the depreciation charge expressed in dollar terms and the depreciation cost adjusted for changes in the value of the dollar) would be allowed as a depreciation deduction at the capital gains rate. Consistency in the application of the capital gains rate to monetary gains on capital assets would seem to justify this treatment.

Full common-dollar depreciation.--The most complete solution to the price-level problem as it affects the proper measurement of the depreciation charge would be to allow as a deduction against revenues the full purchasing-power equivalent of the original dollar cost depreciation charge. Only in this way would taxation of real capital be avoided and equity achieved in the distribution of the real tax burden among firms with investments in depreciable assets. The use of this method does, however, apply, in part, a real-equity standard to investors in capital goods while retaining a money-equity standard for investors in financial assets. Thus, the problems of intergroup equity in taxation are, perhaps, increased.

Full common-dollar accounting.--This proposal would substitute a real-equity standard completely for the monetary-equity standard in taxation. Not only would depreciation be adjusted for price-level changes but all purchasing-power gains and losses on monetary assets and liabilities would be recognized in computing taxable income as well. To adopt this method only for businesses investing in depreciable assets would certainly not be equitable to investors in financial assets. The former would be allowed to deduct purchasing-power losses on the small portion of their investment that is in receivables while the latter, who have most of their investment in dollar obligations, would be denied the

opportunity to do so.

It would seem that the only fair way to implement full common-dollar accounting would be to extend it to all groups of taxpayers. Although this extension would not be impossible, the administrative problems might be tremendous. Moreover, under the complete adoption of the real-equity standard, common stockholders would have to be taxed on any realized purchasing-power gains on long-term debt. The difficulties in determining when there has been a realization of the purchasing-power gain (for example, in refunding operations) would be matched by the burdens imposed on the taxpayers to raise the necessary funds to pay the extraordinary taxes in the year such long-term debt was retired.

Summary--Adjusted Data and Taxation

In the area of income taxation, no definite policy recommendations for changes in the present tax system are justified. The problems of tax equity and difficulties in administration exert an influence on tax regulations in addition to the considerations surrounding the measurement of income.

The need for intragroup equity is great. In order to alleviate the taxation of real capital and to mitigate the discrimination, in terms of relative real tax burdens, against firms investing in capital goods, particularly long-term commitments, some recognition of the changing value of the dollar must be given in computing the depreciation charge. Such recognition is of great importance to public utilities which generally are largely capital-intensive enterprises with sizeable investments in relatively long-term assets. Nonetheless the degree to which price-level adjustments can be employed in determining the taxable income of holders of depreciable assets is conditioned somewhat by considerations

of inter-group equity--that is, just treatment of different types of taxpayers.

Upon review, methods of accelerated depreciation appear to afford little if any corrective relief from the problems of a varying unit of measure. On the other hand, full common-dollar accounting would seem to be acceptable only if extended to all groups of taxpayers. To do so might involve grave administrative difficulties. Consequently, it would appear that the measure of relief to be given to capital-intensive businesses should go further than just allowing decreasing-charge depreciation but not as far as complete recognition of all purchasing-power gains and losses.

An analysis of possible methods within these limits discloses that capital gains treatment of the dollar difference between purchasing-power depreciation and original dollar cost depreciation is a logical extension of the money-equity standard as applied under the present tax laws and, yet, would grant some relief compared to the present. Likewise, reinvestment depreciation with a reduction in the cost of the new asset acquired involves no problems of equity in treating other taxpaying groups. As a special case of rapid write-off, it affords only temporary relief, however, and has the further disadvantage of tending to perpetuate the established lines of investment rather than encouraging new lines of endeavor.

Reinvestment depreciation without a reduction in the cost basis of the replacement has this same defect but offers some permanent, albeit delayed, protection against rising price levels to the owners of depreciable assets. In doing so, however, this method breaks with the money-equity standard applied to other groups. The use of purchasing-power

depreciation throughout an asset's life also applies a partial real-equity standard. It probably represents the maximum limit that the authorities would go in recognizing changes in the value of the dollar. It does, however, offer current and permanent relief to investors in depreciable assets. The question to be raised concerning both these methods is, "Is protection of the real investment in capital assets important enough to the growth of the economy to warrant risking the possibility of intergroup inequity?"

Until some one of the above measures is adopted or, perhaps, a different provision with the same objective, the use of accounting data adjusted for price-level changes would point up the need for some measure of relief to correct the taxation of capital and the variations in tax charges because the age and nature of the physical assets of two companies are different. For example, tax rates on the real incomes before taxes of the four utility companies studied in Chapter III varied from 55% to 75% since 1950.

If some plan of tax relief were put into effect, adjusted accounting data would become, of course, an integral and necessary prerequisite for the administration of such a plan. Most of the possible solutions suggested earlier in this section were premised on the existence of adjusted accounting data.

Summary

The purpose of this chapter is to examine the relevancy of common-dollar accounting to governmental decisions affecting public utilities. In the areas of regulation and taxation there appears to be a need for recognition on the part of governmental agencies of the fact that the dollar is not a stable unit of measurement. In both areas,

but particularly so in the area of regulation, government attention to the problems of the changing price level is required to correct inequities suffered by utilities in comparison with other types of industries and to deter the possibility of deleterious economic effects on utilities and the users of utility services in the future.

Recognition of changing price levels and the use of accounting data adjusted for such changes assumes even greater importance in the area of government decisions when one considers that the extent of the influence of common-dollar accounting on management and investor decisions depends greatly on its reception by government authorities. As indicated in Chapter III utility managements may be unable to adjust policies as fully as they may consider necessary because the governmental agencies exerting some degree of control over the earnings, taxes, or other areas of influence on utilities have not recognized the decline in the value of the dollar. The reactions of both managements and investors to inflation will vary with whether the distorted measurements caused by inflation are being considered by government.

It was found that common-dollar accounting can be applied quite readily in the area of utility rate regulation without any serious legal, economic, or equity problems. In fact, it appears that the use of adjusted data in determining the rate base would give the utilities the same opportunity as other firms not subject to rate control to maintain their real earnings which may eventually lead to lower consumer rates and better service. Moreover, the administration of price-level adjustments for regulatory purposes would not be complex.

In the area of taxation, the use of common-dollar accounting in full can not be administered as easily or as equitably as in the re-

gulatory sphere. Despite the difficulties involved there appears to be justification for adopting some measure to recognize the decreasing purchasing power of the dollar over time in the levying of the income tax burden.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Accountants in supplying data to be used by various decision-making groups in our economy have historically employed the dollar as their measuring unit. However, as shown in Chapters I and II, the dollar is not a satisfactory yardstick by which to evaluate diverse groups of goods and services because its value fluctuates over time. The monetary unit derives its value from what it will buy--that is, its general purchasing power. The latter has not been stable from year to year but, rather, has shown an almost continually declining trend over the past twenty years.

The second chapter examines corrective measures to mitigate the distortion in financial statements caused by the fluctuating dollar. Among these are economic concepts of income measurement, Lifo inventory valuation, replacement costs and specific index-number adjustment of the accounts. Each of these was rejected in favor of a purchasing-power concept wherein accounting data would be adjusted for changes in the general price-level as measured by a suitable index. Although the difficulties in selecting a proper index are recognized, systematic conversion to a stable common denominator (common dollar) of the accounting concept of income would provide meaningful and easily attainable data.

The main purpose of this study has been to investigate the usefulness and relevancy of such adjusted data to some selected areas

of management, investor, and governmental decisions applicable to public utility companies.

Summary of Findings

In most cases, the use of accounting data adjusted for price-level changes would unveil additional or more accurate information which, otherwise, may remain concealed. Moreover, the continued use of unadjusted data could lead to inequitable or uneconomic decisions in some areas.

Management Decisions

Debt policy.--In this area a comparison of adjusted accounting statements discloses the relative decrease in the real interest burden as the price level rises as well as the increased value of the stock equity expressed in terms of a constant dollar. The decline, however, in real earnings and, therefore, interest coverage might offset the tendency toward greater use of senior capital arising from the other two factors. The net effect on debt policy may or may not be an increase in the debt ratio. Nevertheless, management and regulatory agencies which base their decisions in this area on unadjusted data may be ignoring the three factors mentioned above. As a consequence, the optimum capital structure may not be attained.

Wage and bonus policy.--The use of adjusted data in the area of wage determination would be helpful in eliminating false conceptions of ability to pay occasioned by measuring costs with a different yardstick from revenues. Although union wage demands probably would not be affected as such, the will of management to resist unwarranted wage advances may be strengthened, particularly if arbitrators had the ad-

justed data available also. Conversely, with reliance placed on unadjusted data and its spurious notion of profits, management might be tempted to capitulate or be forced to concede to unrealistic labor demands by government pressure.

In establishing bonus payments to the management of an enterprise, common-dollar accounting provides a more realistic measure of the earnings broadly attributable to the managerial function. The pseudo-earnings arising from the understatement of expenses because the assets consumed were acquired in earlier periods when the purchasing power of the dollar was greater are removed from consideration. It is argued that management should receive credit in the form of bonus compensation only for the increased real earnings and not the increased monetary earnings. Adjusted data would enable the directors to distinguish between the two.

Dividend policy.--Adjusting accounting statements for changes in the value of the dollar would reveal to management and to stockholders the higher payout ratios existing when earnings are measured in a constant dollar. Moreover, it would disclose the degree to which the real capital of the utility is being paid out in the guise of dividends. If the dividend policy is based on incorrect assumptions as to the stability of the monetary unit, the recognition of the fact that unadjusted payout ratios are understated may lead to a decline in the payout ratios.

On the other hand, one would expect this decline to be very gradual since utility managements may have a conscious policy of keeping dividend payouts high in order to attract new capital into the enterprise. Of course, the paying out of the real capital of the enter-

prise as dividends to attract new capital results often in an inequitable dilution of the equity of the old stockholders. However, because management has little it can do to solve the problem of getting new capital unless rates are allowed to increase and because stockholder demands are for large dividends and not for protection of capital, the impact of adjusted data on payout ratios would not be as swift as originally anticipated. In the long run, it would seem that the use of adjusted data may contribute to a decline in stockholder demands for current dividends and increased emphasis on the maintenance of the existing real capital in the company.

Investment policy.--As most investment is based on considerations of the future, existing accounting reports can exert an influence in the investment area only to the extent that they affect expectations of the future. It is reasoned that common-dollar accounting would exert a general counter-cyclical pressure as compared to unadjusted data.

In this area, perhaps even more so than the others, this indirect influence would be tempered strongly by whether the adjusted data are recognized by tax and regulatory authorities. In an inflationary period, the lower taxes resulting from purchasing-power adjustments being used for taxation computations would offset, at least to some extent, the dampening effect on investment occasioned by a lower real earnings picture. At the same time if rates were increased during such a period, the relative demand for utility services and, thus, the derived demand for more utility investment would not increase as rapidly. The converse would be true during periods of a falling price level.

On the other hand, non-recognition in the rate structure of the declining value of the dollar would tend to result in utility services being offered at "bargain" prices compared to other goods and services. The lower relative price of utility services can cause an overstimulation of demand and a subsequent misallocation of resources in utility investment which would not be warranted on the basis of the real costs involved.

In brief, it is difficult to predict what the net outcome of using adjusted data in investment decisions would be. Nevertheless, price-level adjustments are deemed an important influence on investments through their direct effects on expectations and indirect effects depending on whether or not they are employed in taxation and regulatory decisions.

Investor Decisions

Investors in senior securities are, for the most part, institutional investors who either have no choice except to invest in fixed-income securities or have passed on to depositors or policyholders a large portion of the inflationary risk. Consequently, the existence of adjusted accounting data would have little effect on their general investment policies. Their specific selection of companies, however, may be materially affected by the disclosures of the adjusted data such as lower real interest coverage and inadequate depreciation charges in real terms.

For the common stock investor and those fixed-income investors trying to hedge against inflation by purchasing bonds and preferred stocks with conversion or stock warrant features, accounting data adjusted for price-level changes offers substantial benefits. Reduced

to a stable common denominator, the data for different companies are more comparable. In addition it enables the investor to appraise the varying impacts of inflation on one company as opposed to another. Growth trends in sales, earnings, and earnings per share would be more meaningful since they are measured and reported in terms of current purchasing power and not distorted by apparent gains which only maintain the same real flow as in previous periods. The rate of return concept, free from the inaccuracies caused by measuring its component parts in dollars of different values, serves as a better indication of future earning capacity as well as of current management performance.

Governmental Decisions

Regulatory policy.--In Chapter V, a modified version of common-dollar accounting is suggested for use in determining the rate base, the allowable earnings, and the rates of utility companies. Adjusting the original dollar investment of the common stockholders for price-level changes provides a substitute rate base for the currently used original cost, reproduction cost, or fair value rate bases. By doing this regulatory agencies would accord more equitable treatment to utility investors and, yet, retain a system that is amenable to feasible administration. Utility companies are given the opportunity enjoyed by other industries of trying to maintain the purchasing-power of their reported earnings.

Apart from the removal of this inequity placed on utility investment, the employment of purchasing-power adjustments in rate setting, it is argued, would ease the burden of raising new capital funds for utility expansion and tend to promote technological change. Thus, in the long run, there would seem to be a tendency in the direction of

improved service at lower costs. From the evidence gathered from areas which have the most liberal regulatory atmosphere, there would appear to be no indication of higher consumer prices on the average under the proposed plan.

Continuing to use original dollar cost as the proper measure of utility investment in the judgment of what constitutes allowable earnings could result in utilities having to pay a substantially higher price for equity capital. The raising of equity capital would be discouraged, with higher rates and lower standards of service as eventual consequences.

Taxation policy.--Although some modifications might be necessary to preserve intergroup equity among taxpayers, the general concept of price-level adjustments would be useful in the sphere of income taxation also. Accounting statements converted to the current dollar point out the disparity between real and actual income tax burdens. Moreover, a comparison of adjusted statements of different firms in the same industry reveals the varying real tax burden caused by different type and age of assets.

The general conclusion is reached that a definite need exists for some kind of recognition in the tax laws of the fact that the dollar is not a stable unit of measurement. After consideration is given to various possible solutions, it is concluded that the exact method would depend on the degree of toleration of possible inequities between different classes of taxpayers, keeping in mind, however, the possible long-run consequences of taxing the real capital of firms investing in depreciable assets on the future growth of the economy.

Summary

The weight of the evidence and examples presented in Chapters III, IV, and V lends credence to the hypothesis that the use of accounting data adjusted for price-level changes can provide helpful and relevant information for management, investor, and governmental decisions in public utilities. In addition, argument was presented to show that the use of unadjusted accounting data may lead to inequitable and uneconomic decisions by investors, government agencies, and business management.

Implications for the Future of Public Utilities

Although there seems to be no imminent danger at the present time to the privately-owned public utilities, one cannot help wondering about their future. If economic conditions surrounding utility investment were such as to dry up the source of risk or venture capital available to them, the only al ernative would be state enterprise. At a time when utilities are embarking on ways to convert nuclear energy to the economic production of utility services, it would appear to be essential to encourage the devotion of equity capital to utility investment.

Such, unfortunately, does not appear to be the case. As Professor Jones stated, "It seems clear that the combination of inflation and income taxes constitutes a very high barrier to the achievement of satisfactory rates of real net income by regulated enterprises. . . ."[1] Under present regulatory policies which, in most cases, ignore purchasing-power changes, the consumer does not pay the full cost of the service

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[1]Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes, p. 72.

provided and the investor fails to receive an equitable or economic return in real terms. One can only surmise that such a policy in the long run will bring about a gradual deterioration of investment opportunities in public utilities and finally a destruction of venture capital in this field.

There remains the possibility of continuing to "muddle through" the problems confronting public utilities. That is to say, if the inflation in this country is gradual enough it is possible to make rate adjustments only when absolutely necessary to attract new capital. In other words, some regulatory agencies may let utilities flounder in the sea of unrealistic real earnings, stepping in only when necessary to keep the victim's head above water. This, of course, is not intelligent rate control nor does it foster a dynamic, progressive utility industry.

There would seem to be some limit on such a policy; the economic fact of changing price levels cannot be ignored forever but must be recognized either explicitly in adjusted rates or implicitly through a movement of risk capital away from utilities. Even if this were not the case, considerations of justice and fair treatment would forbid the indirect confiscation of investor capital through artificial limitations on opportunities for earning a reasonable return on the purchasing power invested.

What the regulatory commissions should adopt is a formal method of setting rates consistent with the changing economic conditions. For what attracts new capital is not so much the immediate return but, rather, the treatment and return that the investor can anticipate receiving in the future. It is believed that the purchasing-power rate base outlined in this study would be a step in this direction.

SELECTED BIBLIOGRAPHY

Books

Alexander, Sidney A., et al. Five Monographs on Business Income. New York: Study Group on Business Income of the American Institute of Accountants, 1950.

American Accounting Association. Accounting and Reporting Standards for Corporate Financial Statements and Preceding Statements and Supplements. Columbus, Ohio: American Accounting Association, 1957.

American Gas Association. Gas Facts. New York: American Gas Association, 1949-1958.

American Gas Association and Edison Electric Institute. Financing Utility Capital Requirements. New York: American Gas Association and Edison Electric Institute, c. 1949.

American Institute of Certified Public Accountants, Committee on Terminology. Accounting Terminology Bulletins, Number 1: Review and Resume. New York: American Institute of Certified Public Accountants, c. 1953.

Barnes, Irston R. The Economics of Public Utility Regulation. New York: F. S. Crofts and Company, 1942.

Bauer, John. Transforming Public Utility Regulation. New York: Harper and Brothers, c. 1950.

Bauer, John, and Gold, Nathaniel. Public Utility Valuation for Purposes of Rate Control. New York: The Macmillan Company, 1934.

Bonbright, James C. The Valuation of Property. New York: McGraw-Hill Book Company, Inc., 1937.

Boulding, Kenneth E. Economic Analysis. 3rd ed. New York: Harper and Brothers, 1955.

Brown, E. Cary. Effects of Taxation: Depreciation Adjustments for Price Changes. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1952.

Caywood, Russell E. Electric Utility Rate Economics. New York: McGraw-Hill Book Company, Inc., 1956.

Clemens, Eli Winston. Economics and Public Utilities. New York: Appleton-Century-Crofts, Inc., 1950.

Committee for Economic Development. Defense Against Inflation. New York: Committee for Economic Development, 1958.

Davidson, Sidney. The Plant Accounting Regulations of the Federal Power Commission. Ann Arbor, Michigan: University of Michigan Press, 1952.

Dean, Joel. Managerial Economics. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1957.

Dewing, Arthur Stone. The Financial Policy of Corporations. 5th ed. New York: The Ronald Press Company, 1953.

Dorau, Herbert B. Materials for the Study of Public Utility Economics. New York: The Macmillan Company, 1930.

Ebasco Services Incorporated. Analysis of Public Utility Financing. New York: Ebasco Services Incorporated, 1950-1957.

Edison Electric Institute. Statistical Bulletin. New York: Edison Electric Institute, 1952, 1957.

Federal Utility Regulation Annotated. Washington, D. C.: Public Utilities Reports, Inc., 1942- .

Foster, J. Rhoads, and Rodney, Bernard S. Public Utility Accounting. New York: Prentice-Hall, Inc., 1951.

Gilman, Stephen. Accounting Concepts of Profit. New York: The Ronald Press Company, c. 1939.

Glaeser, Martin G. Public Utilities in American Capitalism. New York: The Macmillan Company, 1957.

Graham, Benjamin, and Dodd, David L. Security Analysis. 3rd edition. New York: McGraw-Hill Book Company, Inc., 1951.

Graham, Willard J. Public Utility Valuation. Chicago: The University of Chicago Press, c. 1934.

Griffin, Clare E. Enterprise in a Free Society. Chicago: Richard D. Irwin, Inc., 1949.

Hicks, J. R. Value and Capital. Oxford: Clarendon Press, 1953.

Institute of Chartered Accountants in England and Wales. Recommendations on Accounting Principles. London: Gee and Company, Limited, 1953.

Jones, Ralph Coughenour. Effects of Price Level Changes on Business Income, Capital, and Taxes. Columbus, Ohio: American Accounting Association, 1956.

Keynes, John Maynard. A Treatise on Money. 2 vols. New York: Harcourt, Brace and Company, 1930.

Leake, Percey D. Depreciation and Wasting Assets. London: Gee and Company, Limited, 1948.

Life Insurance Fact Book, 1959. New York: Institute of Life Insurance, 1959.

Lopes, Lucas. "Electric Energy in Brazil," Brazilian Technical Studies. U. S. Institute of Inter-American Affairs. Washington, D. C.: U. S. Government Printing Office, 1955.

Marshall, Alfred. Principles of Economics. 8th ed. London: Macmillan and Company, Limited, 1920.

Mason, Perry. Price-Level Changes and Financial Statements: Basic Concepts and Methods. Columbus, Ohio: American Accounting Association, 1956.

_____. Principles of Public-Utility Depreciation. Chicago: American Accounting Association, 1937.

Moody's Public Utility Manual. New York: Moody's Investors Service, 1920- .

Mosher, William E., and Crawford, Finla G. Public Utility Regulation. New York: Harper and Brothers Publishers, 1933.

Modgett, Bruce D. Index Numbers. New York: John Wiley and Sons, Inc., 1951.

Nash, Luther R. Anatomy of Depreciation. Washington, D. C.: Public Utilities Reports, Inc., 1947.

_____. The Economics of Public Utilities. 2nd edition. New York: McGraw-Hill Book Company, Inc., 1931.

Nichols, Ellsworth. Ruling Principles of Utility Regulation: Rate of Return. Washington, D. C.: Public Utilities Reports, Inc., 1955.

Paton, William A. Asset Accounting. New York: The Macmillan Company, 1952.

_____. Corporation Accounts and Statements. New York: The Macmillan Company, 1955.

Paton, William A., and Dixon, Robert L. Essentials of Accounting. New York: The Macmillan Company, 1958.

Paton, W. A., and Littleton, A. C. An Introduction to Corporate Accounting Standards. Columbus, Ohio: American Accounting Association, c. 1940.

Paton, William A., Jr. A Study in Liquidity: The Impact of Inflation on Monetary Accounts. "Michigan Business Studies," Vol. XIV, No. 2. Ann Arbor, Michigan: Bureau of Business Research, School of Business Administration, University of Michigan, 1958.

Schmidt, Emerson P. The Economics of Public Utilities. Ann Arbor, Michigan: By the author, 1940.

Study Group on Business Income. Changing Concepts of Business Income. New York: The Macmillan Company, 1952.

Sweeney, Henry W. Stabilized Accounting. New York: Harper and Brothers, 1936.

Terbough, George. Realistic Depreciation Policy. Machinery and Allied Products Institute. Chicago: The Lakeside Press, 1954.

Thompson, C. Woody, and Smith, Wendell R. Public Utility Economics. New York: McGraw-Hill Book Company, Inc., 1941.

Troxel, Emery. Economics of Public Utilities. New York: Rinehart and Company, Inc., c. 1947.

Twentieth Century Fund Power Committee. Electric Power and Government Policy. New York: Twentieth Century Fund, 1948.

Ulmer, Melville. The Economic Theory of Cost of Living Index Numbers. New York: Columbia University Press, 1949.

Westfall, Othel D. Accounting Concepts and Techniques for Dealing with Price Level Changes with Presentation of Balance Sheet Price Level Analysis. Norman, Oklahoma: By the author, c. 1950.

Whitten, Robert H., and Wilcox, Pelos F. Valuation of Public Service Corporations. 2nd ed. New York: The Banks Law Publishing Company, 1928.

Articles and Periodicals

American Institute of Accountants, Research Department. "An Inquiry into the Reliability of Index Numbers," The Journal of Accountancy, LXXXVII (April, 1949), pp. 312-319.

The Association of Certified and Corporate Accountants. "Observations on Recommendation XV of the Institute of Chartered Accountants in England and Wales on Accounting in Relation to Changes in the Purchasing Power of Money," The Accountant, CXXX (January 16, 1954), pp. 76-78.

Bedford, Norton M. "Accounting Measurements of Economic Concepts," The Journal of Accountancy, CIII (May, 1957), pp. 56-62.

"Bills Are Lower with 'Fair Value'," Electrical World, CXLIX (June 16, 1958), pp. 71-75.

Blackie, William. "What Is Accounting Accounting For--Now?," N. A. C. A. Bulletin, XXIX (July 1, 1948), pp. 1349-1378.

Bonbright, James C. "Utility Rate Control Reconsidered in the Light of the Hope Natural Gas Case," The American Economic Review, XXXVIII (May, 1948), pp. 465-482.

Bowers, Russell. "Business Profit and the Price Level," The Accounting Review, XXVI (April, 1951), pp. 167-178.

Break, George F. "Capital Maintenance and the Concept of Income," The Journal of Political Economy, LXII (February, 1954), pp. 48-62.

Broad, Samuel J. "The Development of Accounting Standards to Meet Changing Economic Conditions," The Journal of Accountancy, LXXXVII (May, 1949), pp. 378-389.

Brooks, F. Warren. "Cost Depreciation Charges Understate Utilities' Expenses," Electrical World, CXLII (August 2, 1954), pp. 25, 27, 32.

_____. "Needed Reform for Utility Tax Depreciation," Public Utilities Fortnightly, LII (September 24, 1953), pp. 407-415.

"The Business Globe: Argentine Power," Fortune, LV (April, 1957), pp. 96, 99.

Cattela, J. E. Spinosa. "The Impact of Inflation on Argentine Business Enterprise," The Review of the River Plate, CXI (March 18, 1952), pp. 18-21.

Caywood, Russell E. "Needed: A Dynamic Approach to Rates," Electrical World, CXLVI (July 16, 1956), pp. 47-49, 53.

Chandler, Marvin. "Public Utilities as Investments from the Security Analyst's Viewpoint," Land Economics, XXX (August, 1954), pp. 237-247.

Childs, John F. "Cannons of Investment: A Reappraisal: Discussion," The Journal of Finance, XIV (May, 1959), p. 263.

Coughlan, John W. "The Guises of Replacement Cost," The Accounting Review, XXXII (July, 1957), pp. 434-447.

Davidson, Sidney. "Depreciation and Profit Determination," The Accounting Review, XXV (January, 1950), pp. 45-57.

Dean, Arthur H. "The Impact of Changing Price Levels on Rate Making," Public Utilities Fortnightly, LII (December 3, 1953), pp. 817-836.

_____. "Provision for Capital Exhaustion under Changing Price Levels," Harvard Law Review, LXV (June, 1952), pp. 1339-1360.

_____. "The Relation of Law and Economics to the Measurement of Income," The Accounting Review, XXVIII (July, 1953), pp. 328-342.

Dean, Joel. "Measurement of Profits for Executive Decisions," The Accounting Review, XXVI (April, 1951), pp. 185-196.

Dohr, James L. "Income Divorced from Reality," The Journal of Accountancy, LXVI (December, 1938), pp. 361-371.

_____. "Limitations on the Usefulness of Price Level Adjustments," The Accounting Review, XXX (April, 1955), pp. 198-205.

Dohr, James L., et al. "Depreciation and the Price Level," The Accounting Review, XXIII (April, 1948), pp. 115-136.

Dorau, Herbert B. "Is Cost of Capital the Fair Rate of Return?," Public Utilities Fortnightly, LVI (December 22, 1955), pp. 1006-1021.

Eaton, Edgar I. "A Description of the Revised Wholesale Price Index," Monthly Labor Review, LXXIV (February, 1952), pp. 180-187.

Ely, Owen. "Annual Wage Increases Versus Inflation," Public Utilities Fortnightly, LXIII (May 7, 1959), pp. 696-697.

_____. "Financial Reporting and the Problem of Inflation," Public Utilities Fortnightly, LX (August 29, 1957), pp. 320-323.

_____. "The Outlook for Electric Utilities," Public Utilities Fortnightly, LIX (March 14, 1957), pp. 395-399.

_____. "Utilities Urged to Claim Fair Value," Public Utilities Fortnightly, LXIII (February 12, 1959), pp. 244-247.

" 'Fair Value' Yields Top Returns," Electrical World, CXLIX (May 5, 1958), pp. 97-100.

Ferger, Wirth F. "Distinctive Concepts of Price and Purchasing-Power Index Numbers," Journal of the American Statistical Association, XXXI (June, 1936), pp. 258-272.

Foster, J. Rhoads. "Capital Cost and Fair Return," Public Utilities Fortnightly, LIII (March 18, 1954), pp. 340-356.

Freeman, E. Stewart. "Why Profit Figures Are Misleading," The Controller, XIX (December, 1951), pp. 564-567, 578-581.

Froehlich, Walter. "The Role of Income Determination in Reinvestment and Investment," The American Economic Review, XXXVIII (March, 1948), pp. 78-91.

Goddard, Edwin C. "Fair Value of Public Utilities," Michigan Law Review, XXII (June, 1924), pp. 777-797.

Grady, Paul. "Impact of Price Level Changes on Utility Depreciation Costs," Public Utilities Fortnightly, XLIX (June 19, 1952), pp. 819-827; L (July 3, 1952), pp. 31-40.

_____. "The Need for Recognizing Fair Value," Public Utilities Fortnightly, LIII (March 18, 1954), pp. 357-365.

_____. "A Proposal for the Adoption of Standards of Disclosure for Changing Price Levels," The Journal of Accountancy, XCIV (November, 1952), pp. 565-569.

Graham, Willard J. "The Effect of Changing Price Levels Upon the Determination, Reporting, and Interpretation of Income," The Accounting Review, XXIV (January, 1949), pp. 15-26.

Griffith, Frank L., Herman, W. J., and Ginna, Robert E. "Impact of Inflation on Public Utilities," Public Utilities Fortnightly, LIV (August 5, 1954), pp. 119-136.

Gruehn, Herman L. "Utility Problems During Inflation," Public Utilities Fortnightly, LXIII (January 15, 1959), pp. 91-101.

Guercken, C. P. "An Economic Appraisal of the Private Electric Utility Industry," Public Utilities Fortnightly, LV (June 23, 1955), pp. 739-754.

Guercken, C. P. "The Economic Consequences of Regulation," Public Utilities Fortnightly, LXI (June 5, 1958), pp. 819-835.

"Hard Look at Regulatory Climate," Electrical World, CLI (February 9, 1959), pp. 75-78.

Houlihan, D. F. "Recent Significant Trends in Public Utility Rate Determination," Public Utilities Fortnightly, LII (October 22, 1953), pp. 650-660.

Husband, George R. "Professor Dein, Mr. Alexander, and Supplementary Statement Number 2," The Accounting Review, XXX (July, 1955), pp. 383-399.

"Industry Statistics," Electrical World, CXXVII (January 18, 1947), pp. 135-156; CXLI (January 25, 1954), pp. 147-198; CXLIX (January 27, 1958), pp. 85-132.

"Investment Bankers Look at Utility Problems," Public Utilities Fortnightly, LIX (January 3, 1957), pp. 45-53.

Johnson, Charles E. "Inventory Valuation--The Accountant's Achilles Heel," The Accounting Review, XXIX (January, 1954), pp. 15-26.

Jones, Ralph C. "Effect of Inflation on Capital and Profits: The Record of Nine Steel Companies," The Journal of Accountancy, LXXXVII (January, 1949), pp. 9-27.

_____. "Financial Statements and the Uncertain Dollar," The Journal of Accountancy, LX (September, 1935), pp. 171-197.

McDiarmid, Fergus J. "Inflation and Utility Financing and Regulation," Public Utilities Fortnightly, LIX (June 20, 1957), pp. 881-890.

_____. "The Crisis in Bond Financing," Public Utilities Fortnightly, LX (November 21, 1957), pp. 825-835.

McEntire, Richard B. "The Capital Structure of Electric Utilities," The Commercial and Financial Chronical. CLXVI (July 24, 1947), pp. 317, 344-346.

"The Main Features of the Revised Consumer Price Index," Monthly Labor Review, LXXVI (February, 1953), pp. 162-165.

Martindell, Jackson. "Inflation--What It Means to Utilities and Investors," Public Utilities Fortnightly, XLIX (June 19, 1952), pp. 828-839.

_____. "Roadblocks to Sound Utility Regulation," Public Utilities Fortnightly, LII (November 19, 1953), pp. 757-764.

May, A. Wilfred. "Brazil--Inflated Giant," The Commercial and Financial Chronical, CLXXXIV (August 23, 1956), p. 781.

Moonitz, Maurice. "The Case Against Lifo," The Journal of Accountancy, XCV (June, 1953), pp. 682-690.

Morrissey, Fred P. "A Reconsideration of Cost of Capital and a Reasonable Rate of Return," Land Economics, XXXI (August, 1955), pp. 229-244.

Morton, Walter A. "Rate of Return and the Value of Money in Public Utilities," Land Economics, XXVIII (May, 1952), pp. 91-131.

Neill, Donald C. "Common Stock Equity Capital Costs for Gas Utilities," Public Utilities Fortnightly, LXI (January 16, 1958), pp. 73-83.

"New Data and Publication on National Income," Survey of Current Business, XXXIX (February, 1959), pp. 12, 13, 24.

Paton, William A., and Greer, Howard C. "Utility Rates Must Recognize Dollar Depreciation," Public Utilities Fortnightly, LI (March 12, 1953), pp. 333-356.

Paxton, Lloyd. "How a Large Oil Company Adjusted Its Accounts During Postwar Inflation Behind the Iron Curtain," The Journal of Accountancy, XCII (August, 1951), pp. 190-196.

"The Proposed New NARUC Controls for Depreciation Accounting," Edison Electric Institute Bulletin, XIX (December, 1951), pp. 401, 402, 423.

Ross, Clarence H. "Responsibility of Utility Management with Respect to Depreciation," Public Utilities Fortnightly, L (October 23, 1952), pp. 602-617.

Scharff, Maurice R. "Valuation and Depreciation of Public Utility Property," Proceedings of the American Society of Civil Engineers, LXXIV (June, 1948), pp. 825-844.

Scoff, Harold H. "The Impact of the Current Money Market on Electric Utilities," Public Utilities Fortnightly, LX (December 19, 1957), pp. 989-1000.

Snyder, Carl. "Commodity Prices Versus the General Price Level," The American Economic Review, XXIV (September, 1934), pp. 385-400.

Steele, Henry M. "Should Accounting Data Be Adjusted for Price Changes?," Business Horizons, I (Fall, 1958), pp. 70-78.

Tully, George B. "Inflation and Public Utility Depreciation," Land Economics, XXVIII (February, 1952), pp. 63-68.

Wilcox, Edward B., and Greer, Howard C. "The Case Against Price-Level Adjustments in Income Determination," The Journal of Accountancy, XC (December, 1950), pp. 492-504.

Winocour, Jack. "Argentina's Economic Crisis," Fortune, XLV (May, 1952), pp. 95, 206-208.

Public Documents and Reports

Office of Economic Stabilization. Report of the President's Committee on the Cost of Living. Washington, D. C.: U. S. Government Printing Office, 1945.

U. S. Bureau of Labor Statistics. Consumers' Price Index (1947-49 = 100), 1913-1952: Series A-1. Washington 25, D. C., 1952. (Mimeographed.)

_____. "Current Labor Statistics: D--Consumer and Wholesale Prices," Monthly Labor Review, LXXIV-LXXXII (1952-1959).

_____. The Revised Consumers' Price Index. Washington, D. C., 1952. (Mimeographed.)

U. S. Department of Commerce, Bureau of the Census. Statistical Abstract of the United States: 1957. Washington, D. C.: U. S. Government Printing Office, 1957.

U. S. Department of Commerce, Office of Business Economics. National Income 1954 Edition. Washington, D. C.: U. S. Government Printing Office, 1954.

_____. U. S. Income and Output. Washington, D. C.: U. S. Government Printing Office, 1958.

U. S. Federal Communications Commission. Telephone Investigation, Vol. XI: The Problem of the Rate of Return in Public Utility Regulation with Special Reference to the Long Lines Department of the American Telephone and Telegraph Company. Federal Communications Commission, 1938.

U. S. Federal Power Commission. State Commission Jurisdiction and Regulation of Electric and Gas Utilities. Washington, D. C.: Federal Power Commission, 1954.

_____. Statistics of Electric Utilities in the United States: Classes A and B Privately Owned Companies. Washington, D. C.: Federal Power Commission, 1937-1956.

_____. Statistics of Natural Gas Companies. Washington, D. C.: Federal Power Commission, 1942-1954.

U. S. Internal Revenue Service. Statistics of Income. Washington, D. C.: U. S. Government Printing Office, 1937-1956.

U. S. Securities and Exchange Commission. In the Matter of the Columbia Gas System Inc. Holding Company Act Release No. 9993. Washington, D. C.: Securities and Exchange Commission, July 25, 1950.

Legal Citations

Bluefield Water Works and Improvement Company v. Public Service Commission, 262 U. S. 679 (1923).

Clark's Ferry Bridge Company v. Public Service Commission, 291 U. S. 227 (1934).

Dayton Power and Light Company v. Public Utilities Commission, 292 U. S. 290 (1934).

Doyle v. Mitchell Brothers Company, 274 U. S. 179 (1918).

Federal Power Commission v. Hope Natural Gas Company, 320 U. S. 591 (1944).

Federal Power Commission v. Natural Gas Pipeline Company of America, 315 U. S. 575 (1942).

Galveston Electric Company v. Galveston, 258 U. S. 388 (1922).

Knoxville v. Knoxville Water Company, 212 U. S. 1 (1909).

Lindheimer v. Illinois Bell Telephone Company, 292 U. S. 151 (1934).

Los Angeles Gas and Electric Corporation v. Railroad Commission of California, 289 U. S. 287 (1933).

McCardle v. Indianapolis Water Company, 272 U. S. 400 (1926).

Minnesota Rate Cases, 230 U. S. 352 (1913).

Munn v. Illinois, 94 U. S. 113 (1877).

Newton v. Consolidated Gas Company, 258 U. S. 165 (1922).

Pacific Gas and Electric Company v. Railroad Commission of California, 302 U. S. 388 (1938).

Smyth v. Ames, 169 U. S. 466 (1898).

Southwestern Bell Telephone Company v. Public Service Commission, 262 U. S. 276 (1923).

St. Louis and O'Fallon Railway Company v. United States, 279 U. S. 461 (1929).

United Railway and Electric v. West, 280 U. S. 234 (1930).

West v. Chesapeake and Potomic Telephone Company, 295 U. S. 662 (1935).

Wilcox v. Consolidated Gas, 212 U. S. 19 (1909).

Consolidated Gas Company v. Newton, 267 Fed. 231 (1920).

Iowa-Illinois Gas and Electric Company v. City of Fort Dodge, 20 PUR 3d 159 (1957).

El Paso Electric Company, 8 SEC 366 (1940).

Hutzler Brothers Company v. Commissioner of Internal Revenue, 8 T. C. 15 (1947).

Other Sources

"Extracts from Supreme Court of Iowa Decision re Indiana Telephone Corporation--recognition of impact of inflation," Public Utility Reference File. New York: Price Waterhouse and Company, 1958.